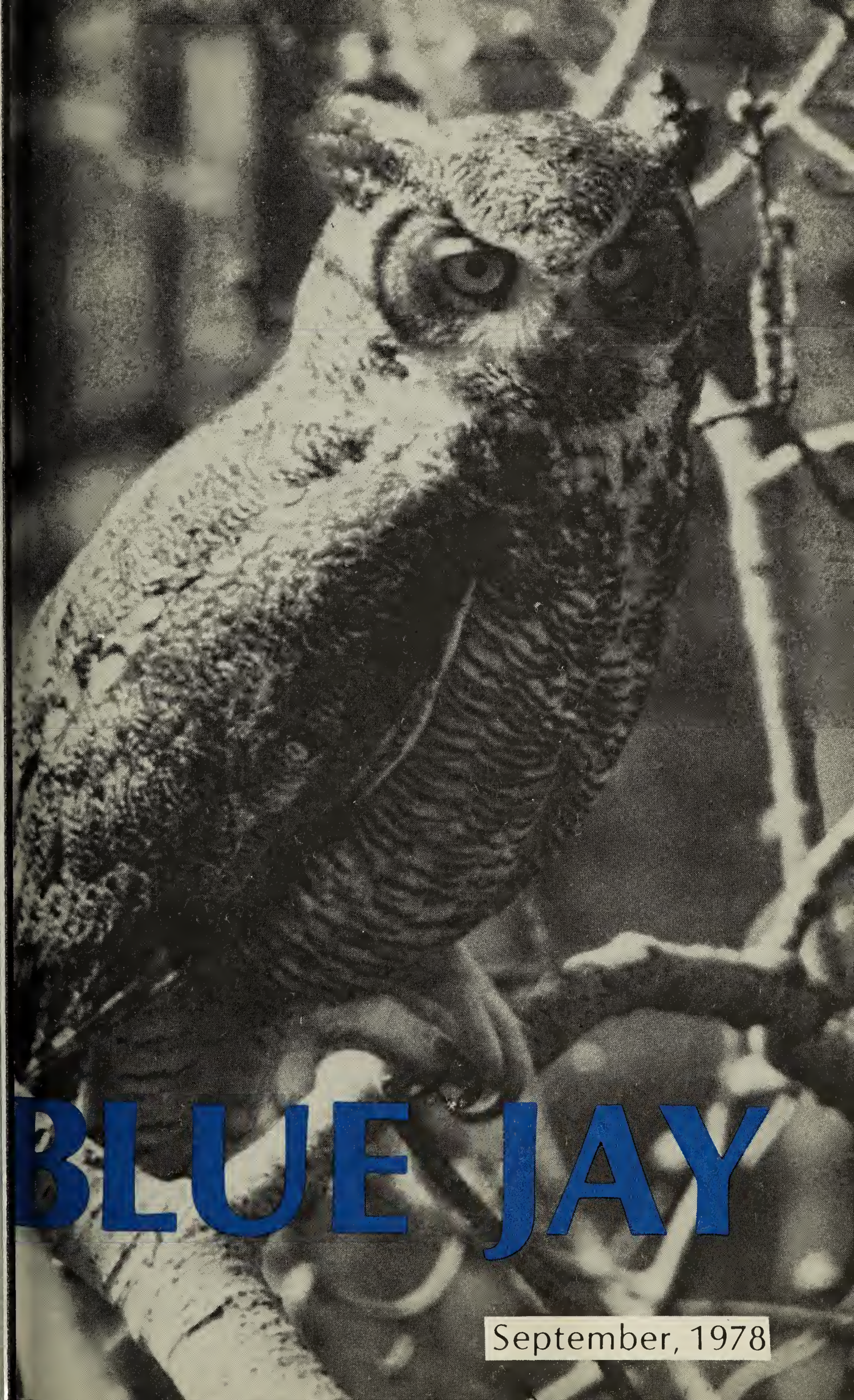

# BLUE JAY

September, 1978

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# BLUE JAY

Vol. 36, No. 3 September 1978 Pages 129-176

# ADDITIONAL RECORDS FOR SOME RARE OR UNCOMMON NATIVE ORCHIDS IN SASKATCHEWAN

VERNON L. HARMS, Fraser Herbarium, Department of Plant Ecology, Universi of Saskatchewan, Saskatoon

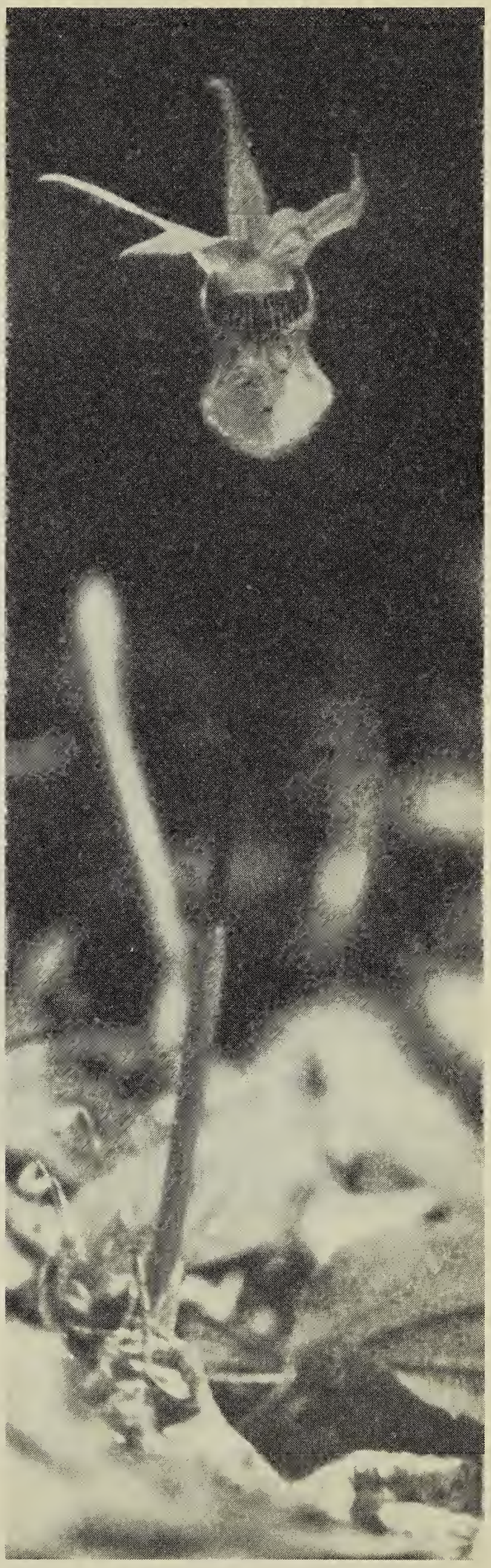
During the last several years, field work, especially in northern Saskatchewan, by the author, associates and students has resulted in additional locality records and a better distributional knowledge of various rare native orchid species in the province. Other earlier collections have often been filed in herbaria but not reported in the literature. The intent of this article is to share the present distributional information regarding these orchids with other botanists and naturalists who have an interest in the Saskatchewan flora. Included for each species are previous locality reports in the literature, recent records, and all additional herbarium specimens seen by the author (SASK = Fraser Herbarium, University of Saskatchewan; USAS = Herbarium, University of Regina, and the Saskatchewan Natural History Museum). The known distributions of these orchids in Saskatchewan are then mapped to better portray their ranges in the province.

The STRIPED CORAL-ROOT, *Corallorhiza striata* Lindl., was previously reported in Saskatchewan by Breitung from Wallwort, Moose Mountain, Kelliher, Langbank and the Cypress Hills.[2] In addition, herbarium specimens have been seen from Theodore, 26 miles NW of Yorkton (*George Brown,* SASK) and from Boomerang Lake, 3 miles NE of Runnymede, 3-4 miles S of Duck Mountain Prov. Park (T 29 N, R 30 W 1st M), (*G. F. Ledingham and E.B. Peterson 4748,* USAS). Newly reported locality records for this rare orchid species include the following: about miles SW of Dundurn Military Cam (Sec. 32, T 32 N, R 5 W 3rd M), aspe grove ravine in dune sand area, Jun 1971, *B. Felski & B. Pegg* (SASK); Pik Lake, 18 miles S-SW of Saskatoon (T N, R 6 W 3rd M), near nature trail S lake in moist rich woodland, June 1 1975, *K. Meeres* (SASK); 16 miles N-N of St. Walburg near Highway 26 (SE Sec. 25, T 55 N, R 22 W 3rd M), moi semi-open aspen woods, May 21, 197 *J. Haraldson* (SASK). The prese records extend the known Saska chewan range of this species no thwestward to the Saskatoon area ar the southern boreal forest fringe at S Walburg (see map 1). The plants, whic are characteristic of rich aspen wood are reportedly very rare at each know site in the province.

The LARGE ROUND-LEAVED BO ORCHID, *Habenaria orbiculata* (Purs Torr., was previously reported Saskatchewan from Torch River (N Nipawin) and Amisk Lake by Breitu and from Weber Bay of Lac la Plon by Harms and Hudson.[2 3] Herbariu specimens have also been seen from Ronge (*J. S. Maini & M. Swan 61* SASK), Big Sandy Lake on the Hans Lake Road (*G. W. Argus 4237,* SASK the Candle Lake area (*J. M. A. Sw 230, H. G. Anderson 1256,* SASK; *R. Russell 15-9-1959,* USAS) and Pinkn Lake, 35 miles NE of Candle Lake (*J. A. Swan 64-45,* SASK). Newly report locality records for this species in t province are the following: McLenn Lake, Mile 83 of Highway 102, NE of Ronge (55° 55′ N, 104° 18′ W), mo

*bracteata* (Muhl.) Gray, was reported by Breitung to be "common in meadows and borders of sandy woods".[2] However, in our experience the species appears quite sporadic in occurrence, and is certainly uncommon, if not actually rare, in Saskatchewan. In the Fraser Herbarium, there are older specimens from the Cypress Hills, Prince Albert, MacDowall, McKague, Candle Lake, Strawberry Lakes S of Indian Head, Willow Bunch and Warmley. Additional new records include the following: Greenwater Lake (T 41 N, R 11 W 2nd M), aspen woods, June 19, 1973, *V. L. Harms 19709* (SASK); Shell Lake, Valley of Shell Brook (NE ¼ Sec. 27, T 50 N, R 8 W 3rd M), aspen woods, May 30, 1976, *J. H. Hudson 3122* (SASK); Meadow Lake Prov. Park, between Lac des Isles and Mistohay Lake (Sec. 13, T 63 N, R 22 W 3rd M), aspen forest, July 1, 1976, *V. L. Harms 23461* (SASK); Dundurn area (T 33 N, R 4 W 3rd M), sandy shady poplar — willow grove July 27, 1972, *E. W. Sullivan 422* (USAS). The plants appear to be locally rare at most, if not all, of the above listed sites where it is known in the province (see map 3).

The VENUS'-SLIPPER ORCHID, *Calypso bulbosa* (L.) Oakes, was previously reported in Saskatchewan by Raup from Lake Athabasca, by Breitung from Bjorkdale, Torch River (N of Nipawin) and the Cypress Hills, and by Jeglum from Candle Lake.[5,2,4] Additional Saskatchewan records for this species are the following: N of Christopher Lake (53° 38′ N, 105° 50′ W), white spruce — jack pine forest, May 22, 1972, *T. F. Cameron 301* (SASK); Mile 4 of Highway 102, N of La Ronge (55° 10′ N, 105° 20′ W), mixedwood forest, May 30, 1961, *J. S. Maini 403* (SASK) June 4, 1972, *J. Ternier & S. Lamont 40* (SASK); Mile 8 of Highway 102, N of La Ronge (55° 12′ N, 105° 17′ W), jack pine forest, June 14, 1960, *J. S. Maini 19* (SASK); E shore of Pita Lake on Churchill River (55° 34′

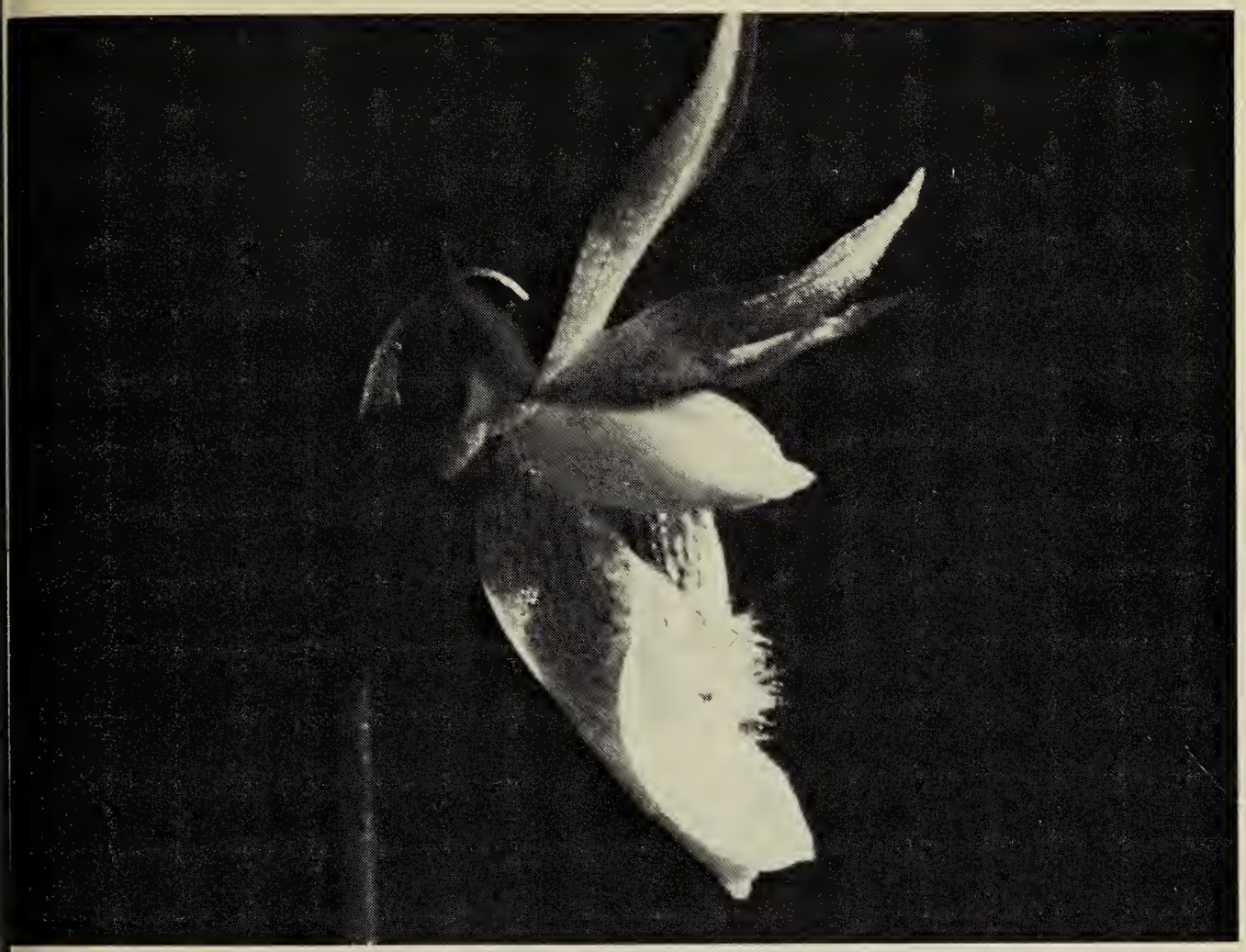


*Venus'-slipper orchid* *Bob Godwin*

*Striped coral-root* *Gary W. Se*

aspen — white birch — black spruce mixedwood forest, July 26, 1972, *J. Ternier & S. Lamont 1077* (SASK); Prince Albert Natl. Park, at Kingsmere River, NW of Waskesiu Lake (54° 02′ N, 106° 25′ W), tall mixedwood forest, June 10, 1971, *T. F. Cameron 312* (SASK). The present records better fill in the species range in the southern boreal forest region of Saskatchewa Although this sporadically occurri orchid appears not to be as rare in t province as once thought, it is hard frequent, and reportedly is locally ra at most known sites (see map 2).

The LONG-BRACTED BOG O CHID, *Habenaria viridis* (L.) R. Br. v

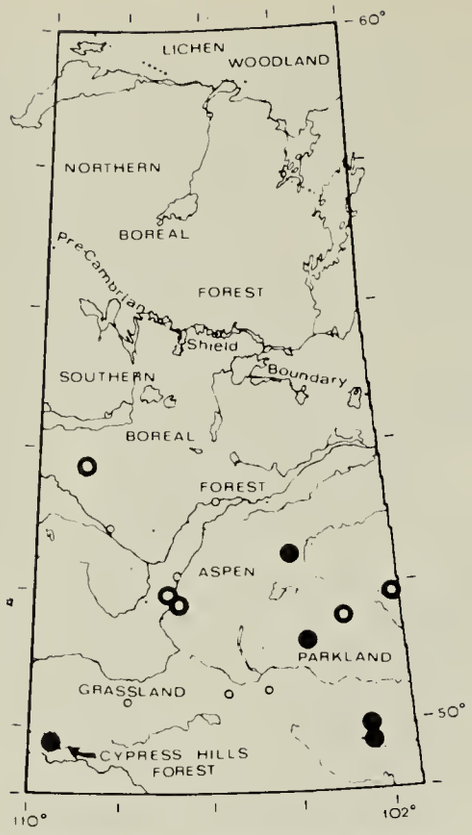


*Venus'-slipper orchid* *Wayne Lynch*

N, 102° 43′ W), moist mixed forest, July 10, 1974, *J. & J. Heilman 2157* (SASK); NE side of Cluff Lake (58° 21½′ N, 109° 32′ W), fresh aspen forest, July 13, 1977, *V. L. Harms, N. A. Skoglund & R. Wright 24125* (SASK). These newly reported records amplify considerably the species' known distribution in Saskatchewan showing it to be relatively widespread in the province. However, the species' occurrence appears quite sporadic and the plants are reportedly rare at most if not all known sites (see map 4).

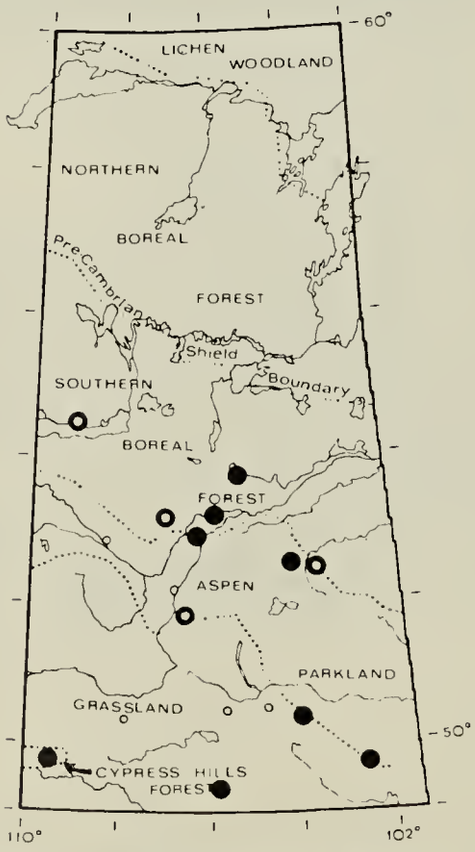
The HEART-LEAVED TWAY-BLADE, *Listera cordata* (L.), R. Br., was reported by Breitung from the Cypress Hills, McKague and Crooked River.[2] Specimens are also present in the Fraser Herbarium (SASK) from near Meadow Lake and Duck Mountain, and in the University of Regina Herbarium (USAS) from Amisk Lake. New locality records are the following: Reindeer River, between Steephill Lake and The Two Rivers (55° 55½′ N, 103° W), black spruce bogs, June 16, 1974, *J. & J. Heilman 1538* (SASK); Cluff Lake area, 1½ miles NW of Island Lake (58° 23½′ N, 109° 42′ W), black spruce — tamarack treed bog, June 16, 1977, *V. L. Harms 23988* (SASK). This characteristic orchid of treed bogs is apparently quite rare at each of the known sites in the province. Although, on the basis of its reported occurrence in Keewatin and Mackenzie Districts (Boivin) this species should be expected throughout boreal Saskatchewan,[1] the above records appear to be the first from the northern half of the province (see map 5).

The NORTHERN TWAY-BLADE, *Listera borealis* Morong, was reported in Saskatchewan by Breitung from the




**1. STRIPED CORAL-ROOT (CORALLORHIZA STRIATA)**

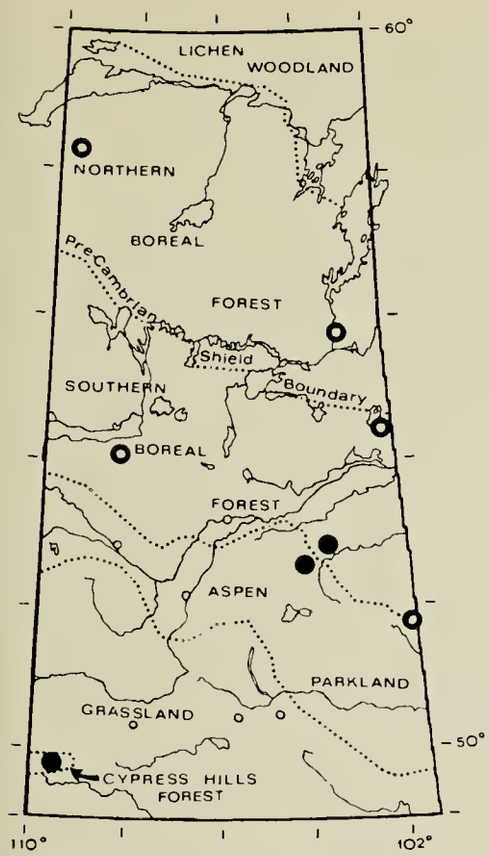

**2. LARGE ROUND-LEAVED BOG ORCHID (HABENARIA ORBICULATA)**




**3. LONG-BRACTED BOG ORCHID (HABENARIA VIRIDIS var. BRACTEATA)**

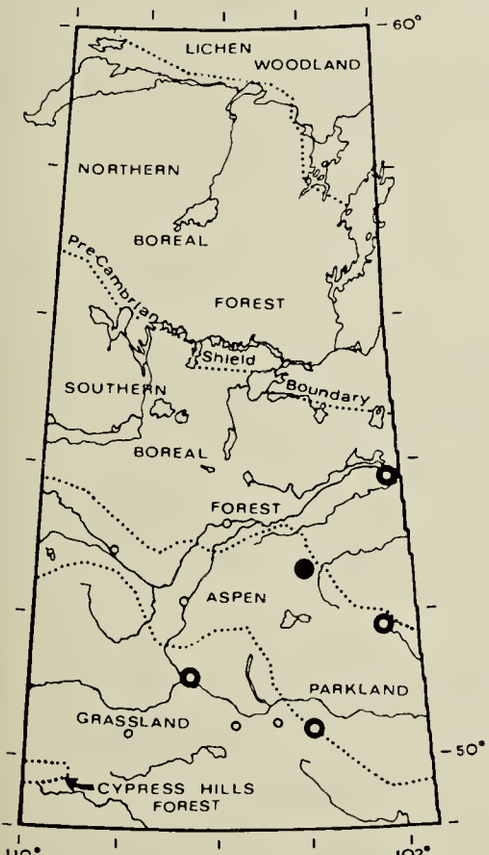

**4. VENUS'-SLIPPER (CALYPSO BULBOSA)**

*Maps 1-4: The known Saskatchewan distribution of some rare or uncommon orchid specie (closed dots represent previous locality reports in the literature; open circles represent eith new or previously unreported herbarium records).*

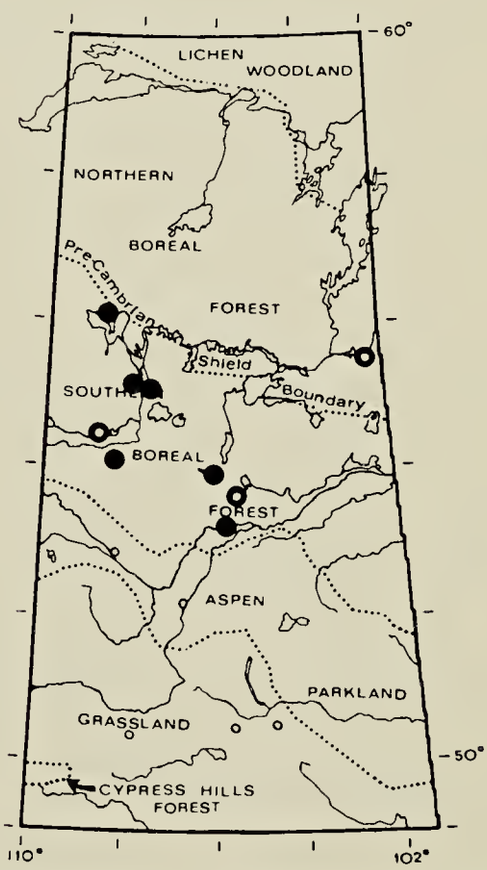



**5. HEART-LEAVED TWAYBLADE (LISTERA CORDATA)**


**6. NORTHERN TWAYBLADE (LISTERA BOREALIS)**




**7. BOG TWAYBLADE (LIPARIS LOESELII)**




**8. SLENDER LADIES'-TRESSES (SPIRANTHES GRACILIS)**

*Maps 5-8: The known Saskatchewan distribution of some rare or uncommon orchid species (closed dots represent previous locality reports in the literature; open circles represent either new or previously unreported herbarium records).*

Cypress Hills, McKague, Prince Albert and Waskesiu Lake.[2] Additional locality records include the following: Lynx Lake, Mile 30 of Highway 102, N of La Ronge (55° 27′ N, 105° 00′ W), willow marsh June 21, 1972, *J. Ternier & S. Lamont 409* (SASK); Shell Lake, valley of Shell Brook (NE ¼ Sec. 27, T 50 N, R 8 W 3rd M) white spruce woods, May 30, 1976, *J. H. Hudson 3120* (SASK); MacDowall area (NW ¼ Sec. 21, T 45 N, R 1 W 3rd M), semi-boggy spruce woods, July 8, 1973, *J. H. Hudson 2862* (SASK). These records help to fill in and also extend the known Saskatchewan range of this rare orchid species about 100 miles northward to Lynx Lake. In Saskatchewan, it seemingly represents a species which is characteristic of moist spruce woods and treed bogs in the southern boreal forest region and fringes, and also in the Cypress Hills (see map 6).

The BOG TWAY-BLADE, *Liparis loeselii* (L.) Richard, was reported in Saskatchewan by Breitung only from the Dahlton-McKague area.[2] Additional records include the following: Cumberland House vicinity, Egg Lake, S of Saskatchewan River (53° 53′ N, 102° 20′ W), floating marsh Island, June 17, 1967, *G. W. Argus 3995* (SASK); Dry Lake, Strawberry Lakes area, 12 miles S of Indian Head (T 16 N, R 13 W 2nd M), wet open seepage shores and lake bed, June 21, 1966, *G. L. Jones 556,* July 27, 1966, *G. F. Ledingham 4765 (SASK,* USAS); Tadmore (SW ¼ Sec. 23, T 33 N, R 4 W 2nd M), wet open marl-bog, July 11, 1974, *J. H. Hudson 2968* (SASK); Elbow area, Douglas Prov. Park (T 24 N, R 4 W 3rd M), wet boggy area, June, 1977, *S. M. Lamont* (to be deposited in USAS).

The SLENDER LADIES'-TRESSES ORCHID, *Spiranthes gracilis* (Bigel) Beck, has been reported previously in Saskatchewan by Breitung from Prince Albert, Waskesiu Lake and Meadow Lake, and by Harms and Hudson from the Beauval-Lac la Plonge area, Little Amyot Lake and Taylor Lake N o Buffalo Narrows.[2 3] Newly reporte locality records in the province i clude the following: S end Sokatisewin Lake on the Churchi River (55° 28′ N, 102° 25′ W), roc outcrops in jack pine forest, June 2 1974, *J. & J. Heilman 1812B* (SASK); 1 miles NW of Paddockwood, SW Candle Lake (Sec. 20, T 54 N, R 24 2nd M), open young aspen fores August 19, 1971, *H. G. Anderson 142* (SASK); Meadow Lake Prov. Park, side of First Mustus lake (54° 25′ N 108° 50′ W), (Sec. 4, T 63 N, R 19 W 3 M), open cleared moist depression July 24, 1974, *V. L. Harms 20675* (SASK This eastern North American speci has been considered a rare species Saskatchewan, at the western limit its range here. Surprisingly, the prese Sokatisewin Lake record is the fir from eastern Saskatchewan or from c the Pre-Cambrian Shield in th province. The plants appear to b locally rare at all known sites in th province except in the upper Church River area (Beauval to Buffa Narrows) (see map 8).

[1]BOIVIN, B. 1967. Enumeration des Plant du Canada, V-Monopsides (I ère partie Naturaliste Canadien 94: 131-157.

[2]BREITUNG, A. J. 1957. Annotat catalogue of the vascular flora Saskatchewan. The American Midla Naturalist 58: 1-72.

[3]HARMS, V. L. and J. H. HUDSON. 197 Some new and noteworthy vascul records from northwestern Sask chewan. Rhodora 76: 39-44.

[4]JEGLUM, J. K. 1972. Boreal forest wetlan near Candle Lake, Central Sask chewan. I. Vegetation. The Musk-Ox, N 11: 41-58.

[5]RAUP, H. M. 1936. Phytogeographic studies in the Athabasca-Great Sla Lake region. I. Catalogue of the vascul plants. Journ. Arnold Arboretaun 17: 18 315.

# ATRIPLEX POWELLII AND CABRI LAKE

J. H. HUDSON, Fraser Herbarium, University of Saskatchewan, Saskatoon

One August day in 1976 I visited Cabri Lake and collected, among other specimens, the rare plant *Atriplex powellii* S. Wats. As I have remarked earlier in the Blue Jay, if one picks an interesting-looking stretch of terrain from the map and goes there, there is always a fair chance of finding something out of the usual. The occasion of reporting this seldom collected plant will give opportunity to describe Cabri Lake, as most people have not been there. But first to the plant. It was collected as #3225, August 15, 1976, at a point 10 or 12 miles south of Mantario on L.S.D.2 of 17-25-XXVII W. 3rd, on a dry saline flat slightly fed with saline groundwater, in the bolson of Cabri lake; sheets sent to SASK, DAO, USAS. This is a small silvery Goosefoot Family annual, much like a small *Atriplex argentea,* Silvery Atriplex, but differing as indicated by Boivin;[1] the two bracts which between them enclose the dry fruit are toothed on the margins all the way to the tip in *A. argentea,* but only half way up in *A. powellii.* In the field the leaves of *A. powellii* are some 5-7 mm wide and not much longer, being thus half the size of those of *A. argentea.* The leaves of *A. argentea* are toothed and those of *A. powellii* mostly are not.

Boivin cites *A. powellii* only from Steveville and Rosedale in Alberta, but there is a sheet in the Fraser Herbarium from Log Valley between Morse and Riverhurst.[1] (This other sheet, collected by R. T. Coupland, had been picked out of the *A. argentea* material in stock by C. Frankton of the Plant Research Institute, Ottawa). From our area *A. powellii* ranges widely south to Arizona and New Mexico. Presumably the "powellii" commemorates that John Wesley Powell who in the early 1870's first piloted a boat down the Colorado River with great danger and difficulty.

Cabri Lake may be of more interest to the general naturalist. It is a shallow saline lake of oval form some 2¾ miles north and south by 2 miles east and west, occupying the lowest part of a flat-bottomed closed basin some 3 or 4 miles wide and 6-8 miles long, also lying north and south. The rest of the bottom of the basin is taken up by more or less saline clay flats. The lake seems to have no distinct beaches; I saw only concentric rings of different kinds of salt-loving plants where a beach should have been. Most likely its area changes so greatly with slight changes of depth due to loss or gain of water that the shore has no permanent position and so no beach can form. This is very much like the arrangement of bolson and playa described in works on the geology of the American Great Basin.

The bottom of the basin is some 250 feet below prairie level. The regions of steep drop, that is, the walls of the basin, are gauntly eroded into a maze of breaks and ravines, at least on the east side. The opposite or west wall is steep and scarped and rather less cut up. Short wash slopes some ¼ — ½ mile long with a rise of some 30-50 feet join the salt-grass covered flat of the basin bottom to the foot of these valley walls. These slopes are here and there spotted with saline springs and seepages.

Above the west scarp of the basin rises a lumpy skyline because of the presence of a north-south range of morainic till hills up to 200 feet above prairie level, closely bordering and

paralleling the basin.

Christiansen, who mapped the area geologically, took this depression to be an isolated remnant of a preglacial river valley which had been filled in flush to prairie level with glacial deposits everywhere except here, thus leaving a shallow but gigantic pit.[2] Yet I cannot help feeling that the valley, when continuous, must have carried melt water during one or another glacial stage, on account of the steep and eroded east and west walls, which look like those of our better understood meltwater channels. These banks are cut in glacial drift, not bedrock; therefore no badlands occur, and the slopes are all grassed. I had from the map rather hoped that badlands would be present, but it was not to be. A glacial advance must be assumed to fill the preglacial valley with drift; a melting would furnish the water to cut a meltwater channel with banks; and another advance would refill the upper and lower parts of the channel with drift as chance would have it, and in the process leave behind this basin.

To reach Cabri Lake I drove from a point on #44 5 miles West of Laporte, 2 miles South, 3 miles West, 2 miles South, and then on a trail 1.3 miles South till I ran out of road at an uncrossable ravine. Then I started walking to come at the lake from th northeast. I followed down one of th coulees which have dissected the ea wall of the basin till I stood out in th open at the top of the gentle wa slope of alluvial fill above the lak flat. A southeast wind was blowin transferring the shallow brine of th lake downwind and up over its bo dering mudflats so that the shor growing samphire and sea blite we flooded an inch or so deep. Away ov to the south, the wind was blowin alkali dust about in clouds on the drie windward shore. Then a herd of catt appeared from among low hills at m right, chivvied along by sever cowboys on horses (not half-t trucks!). They passed between me ar the lake, perhaps 3/8 of a mile awa and disappeared finally behind a sp in the direction of the alkali du cloud. I thought, "If that isn't a scen from a Western movie!"

[1]BOIVIN, B. 1969. Flora of the Prair Provinces, Part II, Université Lava reprinted from "Phytologia" 17 [2] 58-1 (1968).

[2]CHRISTIANSEN, E. A. 1965. "Geology ar Groundwater Resources of the Ki dersley Area (72-N), Saskatchewa Saskatchewan Research Counc Geology Division, Report # 7, 25 pp maps. Saskatoon.

*Herefords grazing* *Gary W. Se*

# PENNY CRESS POISONOUS TO LARVAE OF THE NATIVE WHITE AT THE PAS, MANITOBA

WALTER KRIVDA, Box 864, The Pas, Manitoba

Recently in trying to get eggs from butterflies enclosed in jars over Penny-Cress *Thlaspi arvense* it was found that though dozens of eggs were laid by Native White *Pieris napi* females not one living larva could be found a few days later. Further laboratory work has established that the larvae will eat the plant but will die from it. Even the slightest nibble will apparently kill the larva.

Penny-Cress is a frequent agricultural weed of European origin and is now spreading into the native habitat of *napi* as well as along disturbed roadsides. The plant was already a pest in Manitoba in 1883 — but only in the south — according to the exploring botanist, John Macoun. Following the disturbance of soil by road building into the North, this weed has spread into the true native habitat of *Pieris napi*. Female *napi* were observed to oviposit freely on this plant in the wild on Rahl's Island, some five miles east of The Pas on May 31, 1977. Here it was flying freely along the edge of a garden. The area is to a large extent still native bordering the Saskatchewan River and in 40-60 year old Black poplar woods. Housing and acreage developments are now gradually moving in. A study series of *napi* taken here is preserved in the author's collections.

Very likely the toxic effects of the plant take effect, killing off the growing larvae in the field. Just to what extent that takes place will require further work.

Evidently, the local native food plant for *napi* is yellow Cress *Rorippa islandica* var. *Fernaldiana*. This is generally an infrequent species but occurs in quantity in established colonies. It occurs in wet to dry ditches over peat or clay and has a wide Ph tolerance. It's a rather plastic species and marked ecological forms occur from time to time. Lush or depauperate forms occur on wet or dry soils. Loose or compacted soils tend to produce characteristic forms also.

If the poisonous traits of Penny-Cress are general (some races may be less virulent), this may well be a contributing factor to the decrease of *napi* in agricultural areas where Penny-Cress would be most frequent as a weed. Here *Pieris rapae* would also thrive. The pressure of *rapea* parasites would have a doubly reinforcing deleterious effect on the native *napi* white.

In The Pas area fortunately the Native cress, *Rorippa islandica,* Fernaldiana will thrive in gardens and peaty fields. It sets seed abundantly. The seed capsules, globose to short ellipsoid, are usually full of seed. Indeed, it has all the makings of a future agricultural weed in the Hudsonian zone as it is gradually opened up to farming.

In the town of The Pas, *napi* flies all through the town around May 20th in an average year. It visits garden flowers and may be establishing itself in new niches. *Napi* in wooded areas will weave its way through fairly thick bush. Ovipositing females search out openings in the woods where the food plant occurs. It is on the wing just as the poplars are coming into leaf. The second generation appears in late July.

*Canada goldenrod* *Wayne Lyn*

*Western wild bergamot* *Barbara L. Shourounis*

*Black-eyed susan* *Wayne Lynch*

# FACTORS LIMITING THE DISTRIBUTION OF THE PRAIRIE RATTLESNAKE

VICTOR GANNON, Dept. of Biology, University of Regina, Regina, Saskatchewan

The prairie rattlesnake *Crotalus viridis viridis* is an important predator of small mammals and birds on the Great Plains of North America. According to Klauber the geographical range of this rattlesnake extends from northern Mexico to southern Canada.[3]

In Canada this subspecies is found in south western Saskatchewan and southern Alberta. Cook has indicated that two population segments occur in Saskatchewan, the first along the South Saskatchewan river and a second along the Frenchman river. These two segments are believed to be joined in Alberta.[2]

The precise reason for the restriction of the prairie rattlesnake to these areas is an interesting ecological problem. The distribution of this snake ends rather abruptly with no concomitant biotic or climatological change.

In 1976 the author began a two year study to determine possible factors which could limit the distribution of this subspecies in Canada. In the course of the study a total of 21 rattlesnake hibernacula in Saskatchewan and Alberta were visited and described. In addition the location and description of 14 hibernacula were obtained from local residents and other investigators.

The major rivers in southern Saskatchewan and Alberta can be divided into two major river systems or drainages: (1) the South Saskatchewan River drainage, including the South Saskatchewan, Red Deer, Bow and Oldman rivers, and (2) the Missouri River drainage, including the Milk and Frenchman rivers.

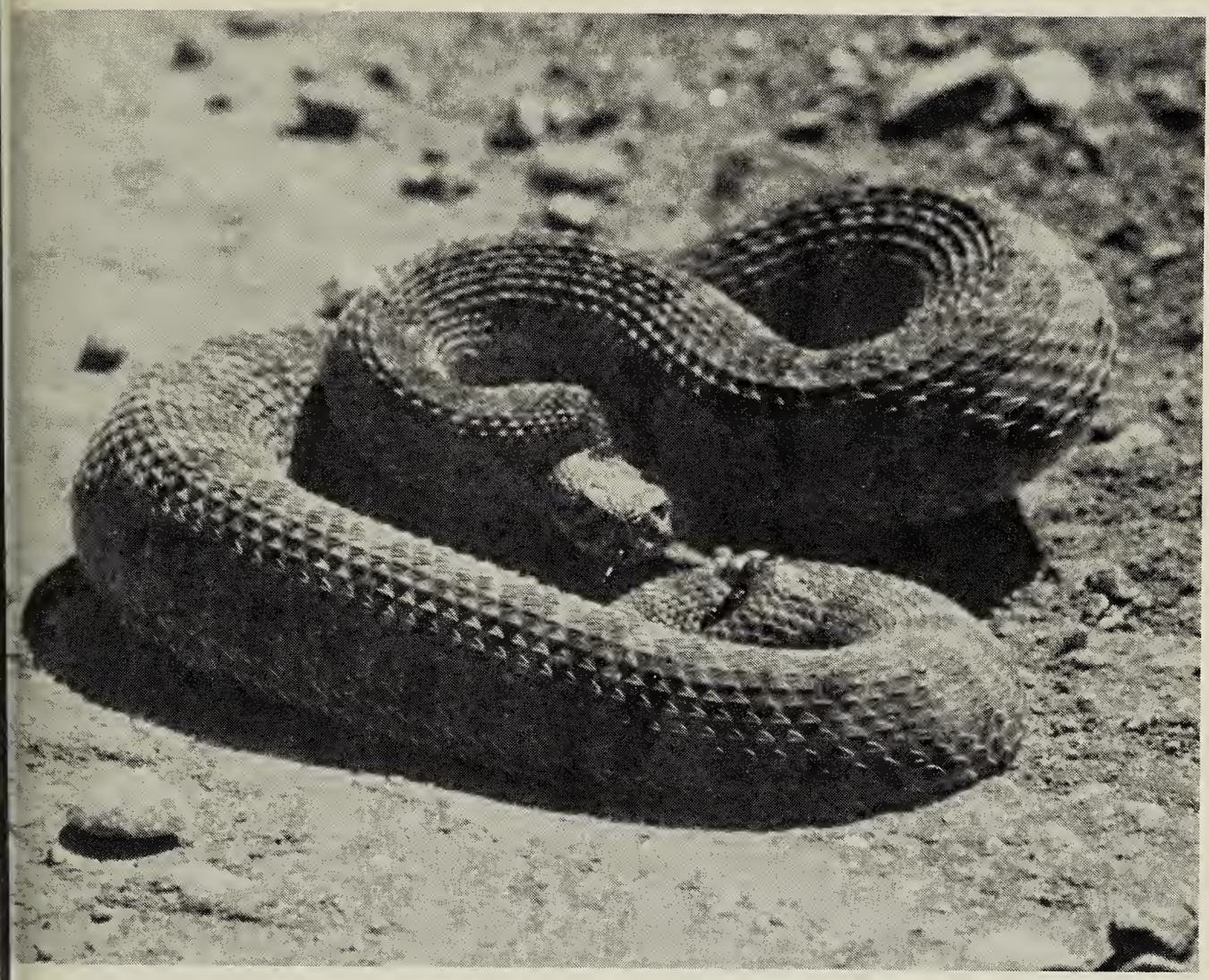
All but one of the 35 hibernacul investigated were located along thes drainage systems. The exception wa located on a minor drainage betwee the Milk and South Saskatchewa rivers.

Slump blocks, meander scarp subterranean water channels and roc outcrops in these drainages suppl suitable conditions for hibernatio The presence of deep fissures an subterranean cavities in thes structures makes it possible for th rattlesnakes to communally hibernat below the frost line.

In addition to the structure, th orientation of the denning site is als important. The hibernaculum usually located on a fairly steep sout facing slope. This provides maximu solar insolation as well as som protection from the prevailing wind This favorable microclimate reduce frost penetration and allows th rattlesnakes to be active a longe period of time.

The area surrounding the hibe nacula showed a similar consistenc This area can be divided into tw separate habitat zones: (1) the riv valley complex, and (2) the surrou ding prairie.

The topography and vegetation the river valley complex tends to va with the location. However, in genera they consist of a series of steep erode



*rairie rattlesnake* *Gary W. Seib*

hills surrounded by a mixed variety of grasses, forbs, shrubs and trees. These ather heterogeneous conditions tend o support a high species diversity and iomass of small mammals and birds. he relative abundance of prey species round the hibernaculum is another dvantage incurred from this location.

The surrounding plain is typically nbroken short grass prairie. Plant ominants in these areas include Spear rass, Blue Grama and Wheat Grass. ichardson's ground squirrel is par-cularly abundant on much of this nd.

During the summer many adult ttlesnakes migrate onto the rrounding prairie. They are often served crossing gravel roads and in ld and pastures. Presumably this ovement is in search of prey.

The geographical consistency of structure and surrounding habitat of prairie rattlesnake hibernacula appears to restrict them to the major river drainages. Furthermore, they appear restricted to sections of these drainages where suitable denning sites are available. Availability appears to depend strongly on local topography and geomorphology. For example, the range of the prairie rattlesnake ends abruptly near Leader, Saskatchewan on the South Saskatchewan river; Rolling Hills, Alberta on the Bow river and Jenner, Alberta on the Red Deer river. In all three of these locations there is a coincident change in the topography and structure of the river valley. This strongly suggests that the availability of suitable denning sites may limit the geographical distribution of the prairie rattlesnake.

Studies by Cook, McKenna and

Pendlebury have reached similar conclusions.[2 4 5]

**Geographical Isolation and Speciation**

In the New World there are 41 species and 76 subspecies in the family Crotalidae. The state of Texas alone has 15 species in this family. The reason for this great species diversity is a special result of their ecology.

Each species or subspecies is uniquely adapted to its local habitat. In a number of instances more than one species may occupy the same area but little competition occurs because of differences in habitat preference, food supply or activity.

Speciation, *i.e.* the creation of new species and subspecies, is thought to be the result of reproductive isolation of two populations of the same species. If some barrier such as geography prevents the interbreeding of two populations, a new species may develop. Each isolated population adapts independently to its own local environment. This results in morphological changes such as color and size as well as changes in behavior such as reproductive behavior and daily activity.

Rattlesnake populations are ideally suited for this type of speciation for a number of reasons. Communal hibernacula are discrete and often quite widely separated. It is therefore unlikely that much interbreeding occurs between denning populations. For example, Brown and Parker and others have shown the high fidelity of adult snakes to a particular denning site.[1] In addition, the size and means of locomotion of the animal severely restricts the amount of movement possible between dens. These conditions would certainly seem to restrict the amount of interbreeding and thus gene flow between denning populations.

Klauber has divided *Crotalus viridis* into nine subspecies based on morphological criteria such as squamation, coloration, size and body proportion.[3]

The distribtuion of the prairie rattlesnake in Saskatchewan and Alberta presents an interesting problem. The population segments along the South Saskatchewan river drainage and Missouri river drainage may be somewhat isolated from one another.

The level of gene flow between these population segments or for that matter within each segment is uncertain. Taxonomic and behavioral studies are required to clarify the situation.

Acknowledgements

I would like to thank Mr. P. Kowatch for his assistance in this work and his generous hospitality during our stay in the Estuary area. Special thanks goes to Dr. D. M. Secoy for advice and finanacial assistance. Invaluable aid in field work was given to me by Pamela Gannon, Tom Vincent and Allen Ireland. Finally I would like to thank Parks Canada for financial aid in the research.

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# YELLOW-CROWNED NIGHT HERON — A NEW BIRD FOR SASKATCHEWAN

FRANK BRAZIER, 2657 Cameron St., Regina, Saskatchewan, MANLEY CALLIN and DAVID CHASKAVICH

The Lebret Marsh is located 14 miles north of Indian Head in Section 36, Township 20, Range 13 West of the Second Meridian. It occupies the flat land north of the Qu'Appelle River where it flows between Mission Lake on the west and Katepwa Lake on the east. The marsh is bisected by a road which climbs the south wall of the valley.

We were standing on this road about 1530, on May 20, 1978, facing east watching some shorebirds with the sun smiling down from a cloudless sky. A large bird was flying towards us. It was not very high so we had only a head-on view but it was obvious that it was a heron. It was too small for a Great Blue Heron and too large for a Green Heron. At the angle of approach no white plumage could be seen which ruled out every heron except American Bittern, Little Blue Heron but immediately identified a Yellow-crowned Night Heron.

The bird altered course about 150 feet from us and headed south towards the river. The slate-gray body then became apparent which eliminated the bittern; the orange legs, white cheek patch on its dark head and the stout bill ruled out the Little Blue Heron but immediately identified a Yellow-crowned Night Heron in adult plumage.

When the bird reached the river it banked, altering course about 90° to fly east down the river and then drop into the cattail bed on the north side. We drove across the bridge, followed a trail to its end, and proceeded cautiously on foot through light woods to the river. A minute or two later the bird erupted from the cattails and flew north across the marsh, disappearing behind some bushes. We had a good view this time of the white crown, and the feet and lower tarsi projecting beyond the tail, although the latter is useful only when the immatures of the Yellow-crowned and Black-crowned Night Herons are being identified.

We drove back to the point of first observation, climbed through the fence and proceeded towards the north edge of the cattail bed. This time the bird was in a shallow depression screened by tall vegetation. It leaped into the air again before we could examine it at rest but we again noted the main recognition points, although it is such a striking bird that point recognition is hardly necessary. It flew low northeast and landed beyond the sewage lagoon. We drove and walked towards it but, once again, it flushed before we could see it at rest. it continued northeasterly until it vanished behind some trees, but we were close enough to note again all the recognition points: the stout dark bill, the white crown (the yellow is seldom seen unless quite close) and cheeks on the black head, the gray body and wings, the long dark streaking on the back, and the orange feet and legs projecting beyond the tail.

At no time did our bird make any sound. Because the sexes are alike we do not know if it was a male or female.

We can find no previous record of Yellow-crowned Night Herons occuring in Saskatchewan. Godfrey notes a breeding record in Ontario in May, 1954, and two records of wanderers in

that province; nine records for the Maritimes and Newfoundland and a Manitoba record (May, 1959).[2] There is also a summer, 1977, record for Oak Hammock Marsh in Manitoba.[7] There are three North Dakota occurrences: May and June, 1976, and June 1977.[5 6 7] P. D. Skaar does not mention this bird nor does W. Ray Salt and Jim R. Salt, for Montana and Alberta, respectively.[8 4] Palmer shows the breeding range as southern midwest and southern states, north along the Atlantic seaboard to Massachusetts, as well as Mexico, Central and South America.[3] The post-breeding dispersal (limits recorded in 1955) reaches northerly and westerly into areas adjacent to the breeding areas of North America. Palmer considers the North American subspecies to be extending its range northwards.[3] Bull and Farrand agree.[1]


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*Mushrooms* *Fred W. Lahrmar*

# A MODERN NESTING RECORD FOR WHOOPING CRANES IN ALBERTA

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The former breeding range of the Whooping Crane extended in a long, narrow band from Illinois in the southeast to the east-central portion of Alberta. The last U. S. nest was found in Iowa in 1894 and the last Canadian breeding record was the 1922 nest at Muddy Lake, Saskatchewan. Prior to this, the last Alberta Whooping Crane nest was found in 1914 near Wainwright.[1]

Porter[1] lists two Northwest Territories' nests, located in the area between Salt River and Fort Resolution and dating back to 1864. It was about 40 km west of a line connecting these two communities where the last remaining Whooping Crane breeding area was discovered in 1954.[2]

From 1954 to 1965 up to six breeding pairs were accounted for annually in the Sass River area, the only portion of the breeding range regularly surveyed.[3] From 1966 to the present, the total number of known breeding pairs has increased because of more intensive aerial surveying because additional pairs were discovered in areas other than near Sass River and because of a slow increase in the breeding population.[4]

The wild whooper flock migrating from the N.W.T. to Texas has increased from 21 birds in 1954 to about 70 birds at present. This is due, in part, to (1) satisfactory environmental conditions of summer and winter ranges, (2) rigid protection of the cranes throughout their migration pathway, and (3) management techniques which have resulted in greater survival of young in the wild during years when eggs were collected from N.W.T. nests than in non-collecting years.[4]

The last of 17 Whooping Crane nests found in 1977 was discovered on May 9, during an aerial search over potential nesting habitat 30 km south of the Sass River area. Up to that time I had never seen whoopers there before, but the marshes appear suitable and are checked several times each spring.

Scrutiny of our maps showed that the nest was about five km south of the 60th parallel. It marks the first time in 63 years that, at least to my knowledge, Whooping Cranes have nested in Alberta.

The nest contained two eggs, one of which was removed on May 20, 1977 along with single eggs from 15 other nests. The remaining egg in nest No. 17 hatched on or about June 3, the last egg to hatch in the north in 1977.

The second egg was flown to Idaho, where it was placed in the nest of a Greater Sandhill Crane on May 21, and hatched on June 2, the last whooper egg to hatch at Gray's Lake in 1977 (R. Drewien, pers. comm.). This young fledged successfully and migrated with its foster-parents to New Mexico.

Taking into consideration a 29-day incubation period (Kuyt, unpubl. data), the eggs would have been laid about May 4-5. The nest was 130 cm across and 20 cm thick on May 20. Nest material was chiefly the dead stalks of bulrush (*Scirpus* sp.) on a base of *Scirpus* rootstocks with adhering mud. The depth of the pond at one meter

*Whooping cranes at Lucky Lake, Saskatchewan* *Gary W. Se*

distance from the nest was 24 cm.

As with most Whooping Crane nests, this one was located in a rather shallow marsh with bulrush and sedge (*Carex* sp.) the dominant plants. The marsh was surrounded by trees, chief of which were black spruce *(Picea mariana)*, white spruce *(P. glauca)*, tamarack *(Larix laricina)*, white birch *(Betula papyrifera)* and trembling aspen *(Populus tremuloides)*. Several shrubs dotted the nest marsh, particularly in shallow parts, and a few willows (*Salix* sp.) and dwarf birch *(Betula glandulosa)* grew near the nest.

Although the Alberta nest found in 1977 is about 25 km south of the nearest nest along Sass River, the location is well within Wood Buffalo National Park and the new nesting pair should benefit from the same protection afforded by the Park as other nesting Whooping Cranes.


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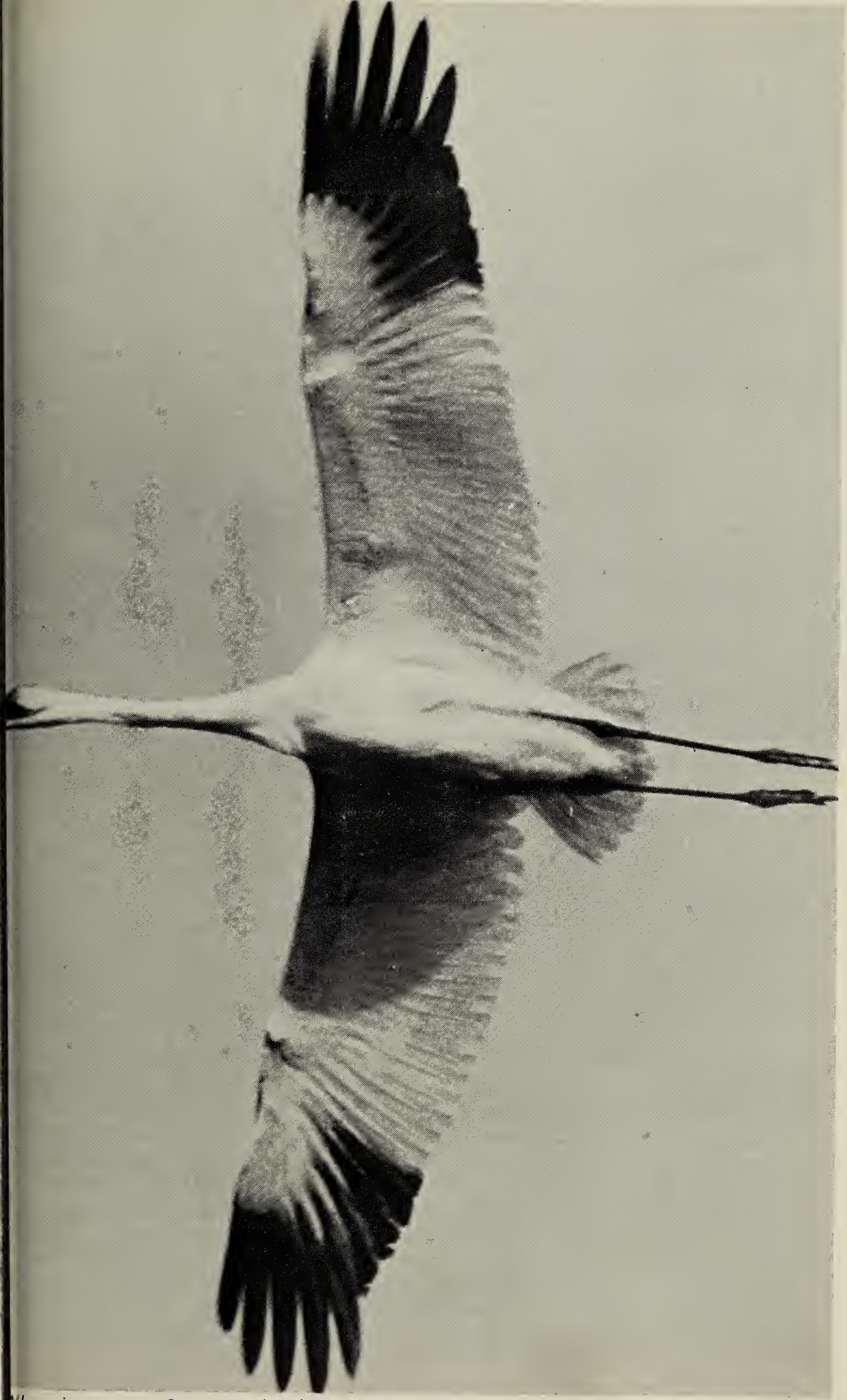

Whooping crane at Ogema, Saskatchewan

Fred W. Lahrman

# CLUTCH SIZE OF THE AMERICAN AVOCET IN THE PRAIRIE PROVINCES

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HAROLD W. PINEL, 1017 — 19 Avenue, N.W., Calgary, Alberta

The American Avocet is a large, showy bird that is fairly common in suitable habitat across the prairie region of Canada. Considering the ease with which this species can be observed, surprisingly little information is available in the literature on the breeding biology of this species in Canada.

Nesting data was accumulated for the American Avocet from: Prairie Nest Record Scheme; Calgary Field Naturalists' Society observation files; United States Fish and Wildlife Service, Migratory Bird and Habitat Research Laboratory; Royal Ontario Museum; Field Museum of Natural History; Santa Barbara Museum of Natural History; University of Massachusetts; National Museum of Natural Sciences; Western Foundation of Vertebrate Zoology; and University of Wisconsin. As well, the authors used their own unpublished records (including data subsequently reported by Kondla[5] and the following literature: Bent[1], Farley[2], Horsbrugh[4], Mitchell[6], Munro[7], and Vermeer[8]. The data base contains information available up to 1973.

A cursory examination of the data indicated that the information provided by the museums and the literature was not recent, whereas the file cards of the Prairie Nest Record Scheme were. In view of this, the authors initially analyzed the Prairie Nest Record Scheme data separately from the rest. Because the same trends emerged in clutch sizes and clutch size frequency, the data was combined fo the analysis presented here.

A total of 228 avocet nests wer used for clutch-size analysis Relatively few nests were fron Manitoba but good sample sizes ar available from Alberta and Saska chewan (Table 1).

Table 1 shows the overall clutch siz frequency for the sample. Slightl more than one half (54.8%) of all nest contained 4 eggs. This was by far th most commonly seen number of egg in an avocet nest. Both 3- and 7-eg nests were second in frequency o occurrence. Surprisingly, 8-egg nest ran a close fourth in frequency. Five and 2-egg nests ranked fifth but mos of the 2-egg nests probabl represented incomplete clutches Nine-egg clutches were unknown an one extremely large clutch of 10 egg was reported.

Fifty-six percent of all nests were o islands (Table 2), where 4-egg clutche were again most frequent (47.6%) followed distantly by 7-egg clutche (14.8%), 3-egg clutches (10.9%), and 8 egg clutches (9.3%). (Table 2A). Othe clutch sizes were relatively infrequent

For nests not on islands, separat percentage figures are not give because the sample size is 100 and th percentage figure equals the absolut figure. (Table 2B). By far the mos frequent clutch size again was 4 egg (64%) but there was a more ever distribution among the other clutch sizes without a substantial abundanc

*American avocet* *Gary W. Seib*

of 7- and 8-egg clutches.

Nests with 5 or more eggs constituted 26.6% (61) of the total number of nests. Such clutches represented 31.8% (41) of the island nests but only 21% of the clutches of non-island nests. Thus it seems that large clutches occur significantly more frequently on islands.

These trends in clutch size show some variation between provinces. Up to 1973 Manitoba had not yet reported any clutches with more than 4 eggs. In Saskatchewan, 20% of all nests contained more than 4 eggs and in Alberta a surprising 43% of all nests had more than 4 eggs. In the case of island nests, fully 47% of the Alberta nests had clutches with more than 4 eggs as compared to only 31% of the Saskatchewan nests. In non-island nests the large clutches were fewer, with 36% of the Alberta nests and 10% of the Saskatchewan nests having more than 4 eggs. However, when looking only at clutches of more than 4 eggs, the situation in Alberta and Saskatchewan was quite similar; with 65% of the Alberta large clutches on islands and 72% of the Saskatchewan large clutches on islands.

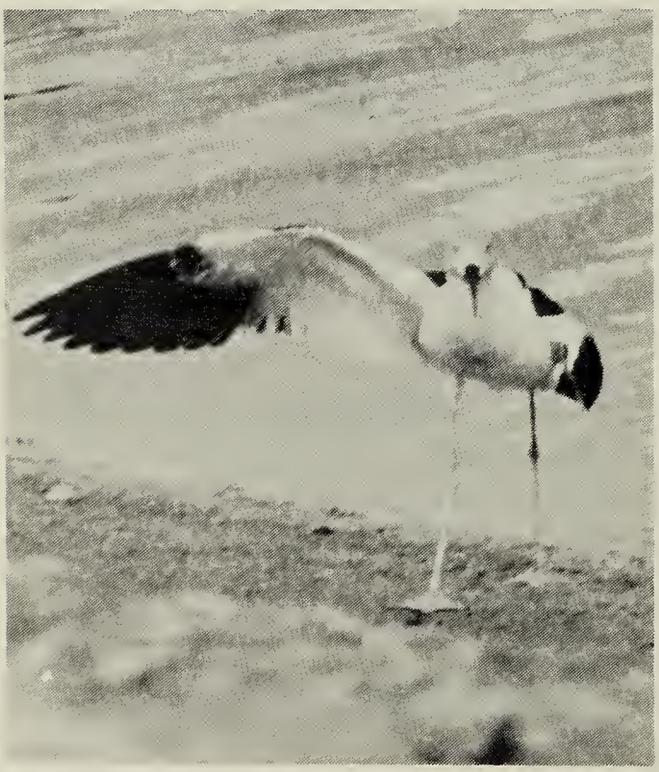
Mean clutch size of all Alberta nests is 5.0, while the appropriate figures for Saskatchewan and Manitoba are 4.4 and 3.4, respectively. For island nests only, the mean clutch sizes are 5.0, 5.0 and 3.4 for Alberta, Saskatchewan, and Manitoba, respectively. For non-island nests the mean clutch sizes again show more differences with 4.9, 3.9, and 3.5 for Alberta, Saskatchewan and Manitoba, respectively. These figures

TABLE 1: OVERALL CLUTCH SIZE FREQUENCY

| Number of Eggs | Number of Nests | | | |
|---|---|---|---|---|
| | Alberta | Saskatchewan | Manitoba | Total |
| 1 | 4 | 2 | 2 | 8 (3.5%) |
| 2 | 4 | 3 | 4 | 11 (4.8%) |
| 3 | 6 | 10 | 7 | 23 (10%) |
| 4 | 44 | 58 | 23 | 125 (54.8%) |
| 5 | 8 | 3 | 0 | 11 (4.8%) |
| 6 | 3 | 3 | 0 | 6 (2.6%) |
| 7 | 19 | 5 | 0 | 24 (10.5%) |
| 8 | 13 | 6 | 0 | 19 (8.3%) |
| 9 | 0 | 0 | 0 | 0 (0%) |
| 10 | 0 | 1 | 0 | 1 (0.4%) |
| | 101 | 91 | 36 | 228 |

show that overall, the mean clutch size of Avocets increases as one moves west from Manitoba to Alberta. They also show that mean clutch size for island nests is the same for Alberta and Saskatchewan, indicating that large clutch size is more closely correlated with nesting habitat than other factors.

Derivations of mean clutch size can, of course, vary with the available data and the concept of "clutch" that is used. For example, Vermeer used the concept of number of eggs in a nest and thus had a range of 1 to 8 eggs per clutch.[8] In contrast, Gibson used the concept of total number of eggs laid by one female, thereby excluding nests with 6 or more eggs, although he included 2-egg nests as complete clutches.[3] Kondla reports that even 4- or 5-egg nests may have composite clutches and hence Gibson's concept is not applied to mean clutch size calculations for this study, since his data does not allow consistent differentiation of eggs from different birds in one nest.[5] Vermeer's inclusion of 1- and 2-egg nests[8] is questionable since all available information indicates that such clutches are not complete. For this study we based mean clutch size on nests with more than 3 eggs. Thus, the figures indicate more closely the mean maximum number of eggs that will be incubated.



*American avocet* *Wayne Renaud*

It was previously pointed out that 7- and 8-egg clutches appear more frequently than 5- or 6-egg clutches. This can be explained if one accepts that 3-, and more often 4-, egg clutches are the rule for individual females. This assumption is supported by virtually all available information. If one further assumes that composite nests are most often the result of only

TABLE 2. CLUTCH SIZE FREQUENCY IN ISLAND AND NON-ISLAND NESTS.

| | A | | | | | B | | |
|---|---|---|---|---|---|---|---|---|
| No. | Island Nest Numbers | | | | | Non-island Nest Numbers | | |
| Eggs | Alta | Sask | Man | Total | Total = % | Alta | Sask | Man |
| 1 | 2 | 1 | 2 | 5 (3.9%) | 3 | 2 | 1 | 0 |
| 2 | 4 | 1 | 2 | 7 (5.4%) | 4 | 0 | 2 | 2 |
| 3 | 4 | 3 | 7 | 14 (10.9%) | 9 | 2 | 7 | 0 |
| 4 | 21 | 23 | 17 | 61 (47.6%) | 64 | 23 | 35 | 6 |
| 5 | 5 | 0 | 0 | 5 (3.9%) | 6 | 3 | 3 | 0 |
| 6 | 3 | 1 | 0 | 4 (3.1%) | 2 | 0 | 2 | 0 |
| 7 | 14 | 5 | 0 | 19 (14.8%) | 5 | 5 | 0 | 0 |
| 8 | 6 | 6 | 0 | 12 (9.3%) | 7 | 7 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 (0%) | 0 | 0 | 0 | 0 |
| 10 | 0 | 1 | 0 | 1 (0.7%) | 0 | 0 | 0 | 0 |
| TOTAL | 59 | 41 | 28 | 128 | 100 | 42 | 50 | 8 |

two females, then these composite clutches must be comprised of various combinations of individual 3- and 4-egg clutches in proportion to their frequency of occurrence, assuming that a female lays her normal number of eggs in both composite and single clutches. Since 4-egg clutches predominate, most large clutches will have a 4-egg component which, in turn, dictates a 7- or 8-egg composite clutch.

A number of trends and phenomena have been pointed out. These may or may not represent the actual situation since it is not known that the data is representative of the actual situation. For example, large clutches on islands may be reported more often than they actually occur because they are easier to find. More information is needed on the situation in Manitoba to determine if the differences that show up are a reflection of the relatively few nests reported from Manitoba or if they are a product of basic environmental and biological differences. Certainly, from an evolutionary perspective, differing environmental conditions in different portions of a species range should be expected to select for differing reproductive strategies.

A thank-you note is warranted for the custodians of the information sources used in this paper. A special note of thanks is extended to many naturalists who have filed observations with nest record schemes and have contributed specimens to museums.

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# BROOD SIZE AND FOOD HABITS OF GREAT HORNED OWLS NEAR CALGARY, ALBERTA

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From 1975 through 1977, I banded 125 flightless young Great Horned Owls in the Calgary area. The 60 nests were in agricultural areas up to 100 road miles from Calgary. I am indebted to Dan Sikorski and John Riddell for their skilled assistance in spotting the nests and banding the young owls, and to Richard Fyfe and Harry Armbruster of the Canadian Wildlife Service for their aid in obtaining a sub-permit and the necessary bands for me.

Owls were banded by the author a spare time permitted. During the thre years, the optimum time for bandin owls in the Calgary area was the las week in April and the first week i May. This is approximately two t three weeks earlier than C. S. Housto reported for Saskatchewan.[2] Mos nests were visited only once with 3 owls being banded in April and 95 i May. The earliest banding date wa April 13, 1977, while the latest wa

*Great horned owl with coot* *Fred W. Lahrma*

*Great horned owl feeding his mate* *Lorne Scott*

May 19, 1975. Besides banding the young owls, the author recorded food items in the nest. A number of nests contained no prey during my visit, while very large nests did not allow the climber to see the contents. Pellets were not examined.

Nest success in 1975 was better than in 1976 or 1977 with an average of 2.5 young per nest and with 50% of the nests containing three of four young (Table 1). Although I have no figures for the density of prey species (hares, pocket gophers, water birds and mice), water birds were noticeably more plentiful during 1975 than in subsequent years. This was verified by habitat conditions and the proportions of aquatic species of birds visible in nests (Table 2). Some sloughs present in the spring of 1975 dried up by 1976 and even more disappeared by the 1977 nesting season.

The number of prey species found in Great Horned Owl nests was 60; 29 of the food items being birds and 31 mammals. In 1975, 100% of the prey items were birds as compared to 57% in 1976 and 34% in 1977.

The most abundant prey items found in Great Horned Owl nests were Varying Hare *(Lepus americanus),* Pintail, Richardson's Ground Squirrel *(Spermophilus richardsonii)* and Pocket Gopher *(Thomonys talpoides).* The Varying Hare was also found the most important prey in Manitoba by Bird, and in central Alberta by McInvaille and Keith.[1 3] It is intersting that Richardson's Ground Squirrel, a diurnal mammal, composed over 25% of the mammals found in the owl nests. Another feature was the low numbers of mice and voles found. It may be that because of their small size, there was less chance of finding uneaten portions in nests or that the adults were consuming them and

*Varying hare* *J. B. Gollop*

*Pintail* *J. B. Gollop*

*Richardson's ground squirrel* *Frank Switzer*

*Pocket gophers left for food in owl nest* *Lorne Scott*

Table 1. BROOD SIZE OF GREAT HORNED OWL IN THE CALGARY AREA

| Year | Number Nests With: 4 yg. | 3 yg. | 2 yg. | 1 yg. | Total Nests | Total Young | Average No. Young | Total Young Banded |
|---|---|---|---|---|---|---|---|---|
| 1975 | 2 | 3 | 3 | 2 | 10 | 25 | 2.5 | 25 |
| 1976 | 0 | 5 | 12 | 4 | 21 | 43 | 2.0 | 43 |
| 1977 | 1 | 8 | 11 | 9 | 29 | 59 | 2.0 | 57 |
| TOTALS | 3 | 16 | 26 | 15 | 60 | 127 | 2.1 | 125 |

Table 2. PREY ITEMS RECORDED IN GREAT HORNED OWL NESTS, 1975-1977

| Prey Species | Number of Individuals 1975 | 1976 | 1977 |
|---|---|---|---|
| BIRDS | | | |
| Mallard | | 2 | 1 |
| Mallard egg | | 1 | |
| Pintail | 1 | 8 | |
| Pintail egg | 1 | | |
| Sharp-shinned Hawk | | 1 | |
| Ring-necked Pheasant | 1 | | |
| Gray Partridge | | | 6 |
| American Coot | | 1 | |
| Rock Dove | | | 1 |
| Short-eared Owl | | 1 | |
| Horned Lark | | 1 | |
| Common Crow | | 1 | |
| Common Starling | | | 2 |
| SUB-TOTAL | 3 | 16 | 10 |
| MAMMALS | | | |
| White-tailed Prairie Hare | | 3 | |
| Varying Hare | | 3 | 7 |
| Richardson's Ground Squirrel | | 4 | 4 |
| Pocket Gopher | | 1 | 6 |
| Deer Mouse | | | 2 |
| Meadow Vole | | 1 | |
| SUB-TOTAL | 0 | 12 | 19 |
| TOTAL | 3 | 28 | 29 |

bringing larger prey to the young owls. Orians and Kuhlman found a similar situation in Wisconsin.[4] In pellet analysis, they found *Peromyscus* and *Micortus* well represented, but in the nest inspections, only one animal o each genus was found.

Odd items of prey included a Pinta egg in one nest in 1975 and a Mallar egg in another in 1976. In both cases, female of the species was found in th nest with the egg, suggesting that th ducks were not completely dead aft being carried to the nest.* Items c prey such as Sharp-shinned Hawk Short-eared Owl, Rock Dove, Crow Starling and Horned Lark illustrate th Great Horned Owls' capabilities an flexibility, and, also, the shortage c preferred prey items.

*EDITOR'S NOTE: In a paper entitled "Eg of Other Species in Great Horned Ow Nests" (Auk 92:377-378. 1975), C. S. Houst and D. W. A. Whitfield give details of nin such cases. They speculated that these eg were within the bodies of laying hens whe brought to the nest and were either expelle there by live birds or left after the owls ha eaten the birds' flesh.

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[3]McINVAILLE, W. B. and L. B. KEITH. 197 Predator-prey relations and breedi biology of the Great Horned Owl ar Red-tailed Hawk in central Albert Canadian Field-Nat. 88(1):1-20.

[4]ORIANS, G. and F. KUHLMAN. 1956. Re tailed Hawk and Horned Ow populations in Winsconsin. Cond 58(5):371-385.

# HIGHLIGHTS OF BIRD OBSERVATIONS IN THE CALGARY AREA, ALBERTA, 1971 - 1977

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RUDI J. BUTOT, 81 Capri Avenue N.W., Calgary, Alberta

Sadler and Myres summarized the Alberta bird observations from 1961 - 1970.[13] Since 1970, there has been a steady increase in the number of birdwatchers in the Calgary area, and as a result, a greater volume of bird observations are being reported each year. Some of the observations have been written up in local bulletins and others are scattered in various journals, but many have not yet been published. The purpose of this article is to catalogue all the rare or unusual sightings made in the Calgary area in the past seven years. The region covered by these observations is an area within a 50-mile radius of the city centre of Calgary. Towns near the borders of the area are Nanton to the south, Gleichen to the east, Olds to the north and Exshaw to the west. (Pinel and Butot, without initials, refer to the authors.)

**Yellow-Billed Loon:** The first documented sighting for Alberta was a single bird observed on Glenmore Reservoir in Calgary from November 2-5, 1975. It was first seen by P. F. Sherrington[17] and M. S. Lore, and subsequently by D. & P. Allen, Butot, C. Hitchon, Pinel and W. Smith. The second authenticated sighting was made on November 22, 1976, when a bird was found in a roadside ditch near Springbank by G. Sargent, and taken to the Inglewood Bird Sanctuary in Calgary. It was identified and photographed by Pinel, J. R. Riddell, Butot, W. Hall, and P. F. Sherrington. The bird was released on the water at the Sanctuary, where it was last seen on January 12, 1977.

**Arctic Loon:** A single bird was seen on the Bow River near Morley on October 8, 1977, by D. & B. Collister. This constitutes the fourth sighting for the area since 1961.

**Red-Throated Loon:** Three different birds were sighted on October 28, 1973. One was seen at Barrier Lake by P. Scholefield; the other two were observed near Irricana by Butot. Of the latter two birds, one still had vestiges of the red throat patch characteristic of summer plumage.

**Double-Crested Cormorant:** In 1976, a small colony nested on an island in an unnamed lake southeast of Irricana. On June 12, the adults were seen on the nests by Pinel. This is the first recorded nesting of this species in the area.

**Great Egret:** A single bird was observed at Frank Lake from June 18-20, 1977, by Butot and J. Skilnick. This is the first sighting for the Calgary area and only the fifth for Alberta.

**Snowy Egret:** Two birds have been recorded near Irricana. One was seen by D. V. Weseloh and R. Lazerte on May 20, 1971;[18] the other by M. R. Lein on September 2, 1974. A third sighting occurred at Frank Lake on June 19, 1977 — a single bird spotted by Butot and J. Skilnick.

**White-Faced Ibis:** Two birds were seen at Frank Lake on May 11, 1975, by D. Dickson and J. Skilnick (Salt & Salt 1976).[15] This was the first sighting for the Balgony area.

**Trumpeter Swan:** An adult and an immature were on the Bow River in Calgary from November 27 to December 22, 1974, after which time only the adult remained until April 13, 1975.[2] Although the birds were never heard, they were studied and photographed by many local bird-watchers. This was the first reported wintering of this species in Alberta.

**European Wigeon:** Since 1971, single males have been reported on three occasions for the Calgary area. One was seen near Brant on April 4, 1972, by B. & V. Lang, another on March 18, 1973, in Calgary, by P. F. Sherrington and R. Palindat, and the third on April 12, 1975, by Butot, near Carseland. A pair was observed near Calgary by D. Milliken and C. Dunkley on May 25, 1972.

**Greater Scaup:** Definite sightings were made of a single female near Cochrane in October, 1974, by S. Johnston, and again on October 8, 1975, by S. Johnston and Butot.[3] These birds were seen in the company of Lesser Scaups and further verified by photographs. Somewhat less certain are the following reports: Three females near Calgary on September 22, 1971, by R. Palindat; five males near Namaka on April 3, 1976, by Butot, and a pair near Calgary on June 5, 1976, by A. & D. Stiles.

**Oldsquaw:** A single bird was seen on the Bow River in Calgary from December 30, 1973, to January 5, 1974, by I. Halladay, B. & V. Lang, Pinel, J. Price and C. Robinson. Further observations include a female in Calgary on October 20, 1974, by R. Clarke, and two females or immatures near Carseland on November 14, 1976, by Butot.

**Black Scoter:** A possible sighting of one male and two females was reported in Calgary on October 24, 1971, by R. Palindat. The first documented sighting for Alberta was of two birds photographed near Mil 65 miles southeast of Calgary, o November 12, 1976, by Butot.[5]

**Virginia Rail:** A slightly injured in mature bird was found in Calgary o September 28, 1972, by Pinel and Robinson. After a brief recover period, the bird was released. This the first record for the area.

**Western Sandpiper:** The fir documented sightings — one and tw birds (one collected) — for Alber occurred near Shepard on August 1 17, and 18, 1972, as reported b Palindat et al.[9] Prior to this, a sing bird was observed near Strathmore o May 1, 1971, by T. S. & I. Sadler. Or was also photographed by Butot ne Delacour on July 18, 1976.[7]

**Curlew Sandpiper:** The first verifie record for Alberta was a single bi photographed at Frank Lake on O tober 9, 1975, by Butot.[6]

**Buff-Breasted Sandpiper:** Four we seen near Calgary on May 12, 1972, b H. & L. Pinel and nine were reporte from Frank Lake on August 27, 197 by V. & B. Lang.

**Black-Necked Stilt:** A single bird w observed near Irricana on May 2 1972, by D. V. Weseloh, C. D. Bird, V Hall, K. Hodges and W. G. McKay. Th was the second sighting for the Calga area.

**Parasitic Jaeger:** Definite sightings, a of single birds during August September are summarized as follow August 24, 1971, at Inglewood Bi Sanctuary, Calgary, by D. V. Weselo August 25, 1971, at Glenmo Reservoir, Calgary, by R. Palind September 22, 1973, at Frank Lake C. D. Bird; September 22, 1973, Glenmore Reservoir by B. & V. La and C. Robinson; September 19, 20, and 24, 1977, at Frank Lake by But and H. & L. Wolowski. The or previous record for the Calgary ar was of two birds reported by T.

*Caspian tern* *Fred W. Lahrman*

Sadler on September 24, 1969.[13]

**Glaucous Gull:** Calgary's first record was of a 2nd year bird observed from March 28 to April 12, 1972, as reported by Weseloh and Owens.[19] Subsequent observations include a first winter bird at Calgary from October 31 to November 9, 1972, by B. & V. Lang, R. Palindat, Pinel, and W. Smith; a 2nd-year bird at Eagle Lake on April 25, 1974, by Pinel and C. Robinson; and a 2nd-year bird at Calgary on November 5-7, 1975, by Pinel.

**Glaucous-Winged Gull:** An adult bird, observed at Balgony by Weseloh and Lang in 1972 is the first record of this species in the area.[20]

**Thayer's Gull:** Weseloh and Lang reported the second Alberta specimen taken at Balgony on May 19, 1972.[20]

**Black-Legged Kittiwake:** On November 16, 1976, Pinel and Riddell identified an immature Black-legged Kittiwake in Calgary.[11] This bird represents the first authenticated sighting for Alberta.

**Sabine's Gull:** An adult bird was observed at Frank Lake by members of the Federation of Alberta Naturalists on October 1, 1972. Another adult was spotted on September 4, 1977, at Frank Lake by C. & R. Hitchon. These are the only sightings for the Calgary area.

**Caspian Tern:** The only report for the area is an adult bird observed by I. Halladay along the Bow River near Carseland on August 26, 1973.

**Band-Tailed Pigeon:** The first records of this species for Calgary were of single birds seen at the Inglewood Bird Sanctuary: one on May 28, 1975, by W. Munro, the other on May 3, 1976, by G. Sieb.

**Black-Billed Cuckoo:** A nest containing two eggs was found by Kondla on July 13, 1974, near Standard.[8] This is the first nesting record for the Calgary area.

**Anna's Hummingbird:** An immature male was seen by Pinel and Riddell on October 6, 1976, in Calgary.[12] It was tape-recorded and photgraphed on October 7 and last seen on October 31. This observation represents the first report of this species for Alberta. Another immature male was observed by B. deWolff from October 13 to November 5, 1977, in Calgary.

**Lewis' Woodpecker:** An adult was observed by R. Clarke west of Longview on May 8, 1971, and another adult was seen at the Inglewood Bird Sanctuary in Calgary on May 15, 1975, by J. R. Riddell and Pinel.

**Steller's Jay:** The second observation for the area was made by W. J. and E. M. Gregg on January 18, 1976, when they saw a single bird in the Kananaskis Valley near Evans Thomas Creek.

**Eastern Bluebird:** Two male birds were observed in southwest Calgary by W. G. McKay and Butot on various days from May 28 to June 12, 1977. The birds were photographed and their songs recorded. These sightings are the first verified records for Alberta. A single male was reported from Millarville by Mrs. J. MacKay from June 8-16, 1977, and August 29, 1977.[16]

**Purple Martin:** The first successful nesting attempted by this species in Calgary was reported by W. G MacKay who saw a pair of bird feeding a juvenile near a nest box i southeast Calgary on August 14, 1976.

**Black-Throated Blue Warbler:** Salt 1973, states that there are fiv specimen records for Alberta, but n sight records despite this species distinctive appearance.[14] Since hi publication, there are two sigh records for Calgary, both of males. Th first was recorded by A. Mazurek o September 24, 1973; W. Amos reporte the other sighting on October 13 an 14, 1975.

**Chestnut-Sided Warbler:** The firs observation for the area was of a mal seen by L. Butot in Calgary on June 4 1974. Since then, a second Calgar sighting occurred when J. Clarke saw male on July 3, 1977.

**Yellow-Breasted Chat:** On June 21 1974, a single bird was recorded a Bow Valley Provincial Park near Seeb by Pinel, K. Van Tighem, and C Wershler. This is the westernmos sighting for Alberta and only the third observation of this bird in the area.

**House Finch:** A male was observed an photgraphed by Butot from March 1 to April 21, 1973.[1] Subsequen sightings include a male seen from September 29 to October 14, 1973, b Butot, and a female observed by W Amos, Butot, and R. Jones from Apri 28 to May 8, 1975. All observation were made in Calgary. Sadler an Myres report a bird seen at Seebe i June, 1966, by M. Powell, the onl previous sighting for the area.[13]

**Sharp-Tailed Sparrow:** During July 1976, three sightings were reporte from the Priddis area. J. Duncan and K St. Clair saw a bird on July 3, and Buto and W. Hall observed an adult on July 24 and 25.

**Lark Sparrow:** Two birds were observe near Carseland by Pinel on May 30 1976. This is the third report for the

area, and the only one in recent years.

**Golden-Crowned Sparrow:** The first record for the area was a bird observed by Pinel and C. J. Robinson on October 12 and 13, 1972, at Calgary.[10] Since then, there have been two other sightings, an adult bird seen in Calgary on September 9, 1973, by R. A. O'Keefe, and one seen near Cochrane on September 19, 1975, by S. Johnston.

**Smith's Longspur:** An individual bird was observed on April 6, 1971, west of Strathmore by I. Sadler. This is the second observation for the Calgary area.

Additional observations for the 1971-1977 period worth mentioning are: Wood Duck (8 birds/7dates), Harlequin Duck (20/13), Turkey Vulture (5/5), Gyrfalcon (11/11), Peregrine Falcon (11/11), Piping Plover (7/5)[7], American Golden Plover (15/3), Ruddy Turnstone (9/6)[7], Red Knot (8/3), White-rumped Sandpiper (7/3)[7], Dunlin (13/10)[7], Hudsonian Godwit (25/6)[4], Mew Gull (14/12), Black-billed Cuckoo (6/8), Winter Wren (9/8), Canada Warbler (6/5), Black-headed Grosbeak (3/3), Brewer's Sparrow (4/5), and Swamp Sparrow (8/7).


[1]BUTOT, R. 1973. First verified report of a House Finch in Calgary. Calgary Field Nat. 5(1):10-11.

[2]BUTOT, R. 1975. Trumpeter Swan winters in Calgary. Calgary Field Nat. 6(9):303.

[3]BUTOT, R. 1976. Greater Scaup: Its history in the Calgary area 1966-1976. Calgary Field Nat. 8(1):15-16.

[4]BUTOT, R. 1976. Hudsonian Godwit: Its history in the Calgary area 1965-1976. Calgary Field Nat. 8(1):16-17.

[5]BUTOT, R. 1977. First substantiated record of the Black Scoter in Alberta. Calgary Field Nat. 8(8):201.

[6]BUTOT, R. 1977. Rare Curlew Sandpiper sighting in Alberta — October 9, 1975. Calgary Field Nat. 8(8):204-206.

[7]BUTOT, R. 1977. Some uncommon shorebirds of the Calgary area 1963-1976. Buff-breasted, White-rumped, and Western Sandpipers, Ruddy Turnstone, Piping Plover and Dunlin. Calgary Field Nat. 8(8):206-211.

[8]KONDLA, N. 1974. A nesting record of the Black-billed Cuckoo for the Drumheller area. Calgary Field Nat. 6(5):154.

[9]PALINDAT, R., V. LANG, and D. V. WESELOH. 1973. First authenticated report of the Western Sandpiper for Alberta. Canadian Field Nat. 87(3):315-316.

[10]PINEL, H. W., and C. J. ROBINSON. 1973. First report of a Golden-crowned Sparrow at Calgary, Alberta. Blue Jay 31(1):57-58.

[11]PINEL, H. W., and J. R. RIDDELL. 1977. First record of Black-legged Kittiwake for Alberta. Blue Jay 35(2):89.

[12]PINEL, H. W., and J. R. RIDDELL. 1977. First record of Anna's Hummingbird for Alberta. Canadian Field Nat. 91(4):394.

[13]SADLER, T. S., and M. T. MYRES. 1976. Alberta birds 1961-1970. Provincial Museum of Alberta. Natural History Section. Occas. Paper No. 1 314 pp.

[14]SALT, W. R. 1973. Alberta vireos and wood warblers. Provincial Museum of Alberta. Pub. No. 3 141 pp.

[15]SALT, W. R., and J. R. SALT. 1976. Birds of Alberta. Hurtig Publishers, Edmonton. 498 pp.

[16]SALT, W. R. 1978. Another record of the Eastern Bluebird in Alberta. Calgary Field Nat. 9(7):194.

[17]SHERRINGTON, P. F. 1976. Sightings of a Yellow-billed Loon *(Gavia adamsii)* on Glenmore Reservoir. Calgary Field Nat. 7(8):220-222.

[18]WESELOH, D. V., and R. LAZERTE. 1972. Sight record of a Snowy Egret near Calgary, Alberta. Blue Jay 30(1):29

[19]WESELOH, D. V., and R. A. OWENS. 1973. Observations on a Glaucous Gull at Calgary, Alberta. Blue Jay 31(4):94-96.

[20]WESELOH, D. V., and V. LANG. 1973. Glaucous-winged and Thayer's Gulls at Calgary, Alberta. Blue Jay 31(4):230-232.

# WINTER COURTSHIP BEHAVIOUR IN BOHEMIAN WAXWINGS

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Bohemian Waxwings include a "gift-passing" ceremony[2] during courtship display, in which edible or inedible objects are passed back and forth between members of a pair. This ceremony appears to be linked with the establishment and maintenance of the pair-bond. Instances of this ceremony have been recorded on the breeding grounds[3] and in captivity[1]. In this note, we report an instance of the "gift-passing" ceremony between two Bohemian Waxwings on the wintering grounds.

At 1300 on March 15, 1978, we saw a flock of about 40 Bohemian Waxwing foraging in a mixed woodlot along th Red River near the University o Manitoba campus at Winnipeg. W observed two birds, perched on a log at least 10m away from the main flock One bird (bird A) flew to the ground and picked up a piece of ice or snow (slightly larger than the bill). It hopped back onto the log and presented it t

*Bohemian Waxwings* *Wayne Lynch*

*Bohemian Waxwing* *Lorne Scott*

he other bird (bird B). B accepted mmediately and then passed it back o A, which accepted and offered it ack to B which took it after a few econds delay. There then followed ive more exchanges, each bird ac- epting immediately when offered the bject. A ended up with the piece of e and swallowed it. A then hopped ff the log and ate some snow while B emained on the log, apparently esting. The two birds then flew off gether.

Both birds had erect crests during he ceremony, but we noted neither he "fluffed-out" appearance[1] nor any vocalizations.

This observation on the "gift-passing" ceremony in winter suggests that pairing in some Bohemian Waxwings may occur before arrival on the breeding grounds.


[1]MEADEN, F. 1964. Breeding the Waxwing. Avic. Mag. 70:190-195.

[2]MEADEN, F., and C. J. O. HARRISON. 1965. Courtship display in the Waxwing. Brit. Birds 58:206-208.

[3]NERO, R. W. 1963. Birds of the Lake Athabasca Region, Saskatchewan. Sask. Nat. Hist. Soc. Spec. Pub. 5. 143 pp.

*Common redpoll* *Fred W. Lahrm*

# EARLY RECORD OF REDPOLL NESTING IN SOUTHERN ALBERTA

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Recently Lister and Godfrey have documented the nesting of Common Redpolls in Alberta.[1] [2] Godfrey expressed the opinion that nesting of this species in southern Alberta and Saskatchewan is more likely an overlooked situation of long standing than a recent development.[2] Recently while compiling a bibliography of Alberta birds, I found an untitled note by C. H. Snell which supports Godfrey's view, at least to the extent that such southern breeding records are not infrequent.[3] On May 19, 1924 Sn observed a female Common Redp feeding three young at Red De Alberta. Snell's identification appe not to have been confirmed, but description of the female's black c patch and dull red cap leaves lit doubt as to its accuracy. This record further south in Alberta than any of t records mentioned by Lister Godfrey, and also almost two decad earlier.[1] [2]

[1]GODFREY, W. E. 1976. Breeding status the Common Redpoll in Alberta a Saskatchewan. Canadian Field-N 90:199-200.

[2]LISTER, R. 1975. Common Redpolls nest at Edmonton, Alberta. Canadian Fi Nat. 89:64-65.

[3]SNELL, C. H. 1926. (untitled no Canadian Field Nat. 40:18.

# GLAUCOUS GULL AT ROSETOWN, SASKATCHEWAN

F. A. LEIGHTON and ANNA LEIGHTON, R. R. #6, Saskatoon, Saskatchewan S7K 3J9

While driving out of Rosetown, Saskatchewan, at about noon on April 27, 1978, we observed a white gull standing in a flooded area of a field some 50 meters south of Highway #7 at the western city limits, near what we judged to be the municipal dump. The gull was very large, dwarfing the Ring-billed Gulls present. With binoculars and in good light we could see no black or grey markings on the bird whether standing or flying and viewed from above and below. We observed it for about 10 minutes before it flew south to the dump. Reference to field guides at the time and since have lead us to the conclusion that this was a Glaucous Gull, most probably a 2nd- or 3rd-year bird.[1] [2] [3]

Glaucous Gulls have been reported in Alberta, Saskatchewan, and Manitoba but their occurrence on the prairies is relatively rare. Their normal habitat is marine and those individuals seen on the prairies are considered wanderers.[4]

EDITOR'S NOTE: Glaucous Gulls were also reported on the river in Saskatoon on 9 days between April 1 and 10, 1978: a single 2nd-winter-plumaged bird by J. B. Gollop and B. C. Godwin; and from May 9-14: one 2nd-winter bird and up to six 1st-winter-plumaged birds by M. A. Galloway. These Rosetown and Saskatoon reports constitute the 7th, 8th and 9th records for the province.

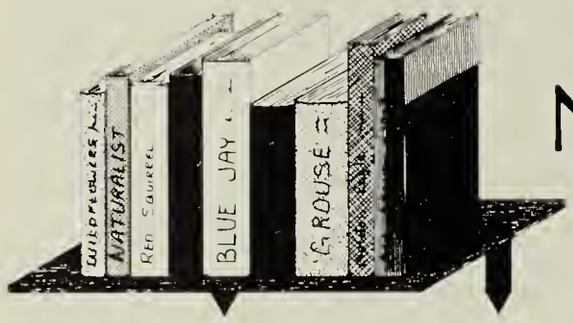
[1]PETERSON, R. T. 1961. A field guide to western birds. Houghton Mifflin Co., Boston. 366 pp.

[2]POUGH, R. H. 1951. Audubon water bird guide. Doubleday and Co., Inc. Garden City. 352 pp.

[3]ROBBINS, C. S., B. BRUUN, H. S. ZIM, and A. SINGER. 1966. Birds of North America. Golden Press, New York. 340 pp.

[4]SALT, W. R., and J. R. SALT. 1976. The birds of Alberta. Hurtig Publishers, Edmonton. 498 pp.

*Glaucous gull at Demarcation Bay, NWT* *M. A. Gollop*




# NATURE LIBRARY

## A GUIDE TO THE BIRDS OF VENEZUELA

RODOLPHE MEYER DE SCHAUENSEE and WILLIAM H. PHELPHS JR. 1978. Princeton University Press, Princeton New Jersey. 423 pp. Cloth: $50.00 Paper: $19.95

When winter drags on and my spirits get so low that I have to be scraped off the floor with a putty knife, my wife has learned that a new field guide will improve my mood and make me more tolerable to live with. Through the pages of a field guide I have hiked in the foothills of the Himalayas, cut my way through the jungles of Indonesia and lunched beside a New Zealand fiord. I have visited every conceivable habitat and the birds I have come to know — well, even Roger Tory Peterson would be inspired.

Last winter, from my living room, I explored Venezuela. Manakins, toucans, cotingas, ant-thrushes and tyrant flycatchers all fell under scrutiny. An eerie cry drew my attention to the mouth of a cave. An oilbird emerged, navigating by echolocation, as it does every night to forage for fruit. Oilbirds are believed to be "possessed," their nocturnal habits and mysterious call arising from the entrapped souls of criminals and other miscreants.

On a frigid Saturday afternoon in late February, with my sanity serious threatened by winter, I decided tramp the heavily forested lowlan and tally a few of the 97 species hummingbirds found in Venezuel Hovering makes great demands these little birds and their heat loss great. To compensate they must fe almost continuously on nectar, a hig energy food. At night they becom torpid and allow their body tem perature to fall so that they can su vive without feeding. My attention wa drawn from a rufous-breaste sabrewing by movement in a near bush. Closer inspection confirmed it be a hoatzin. What a lucky fin Among the birds of South Americ none is more bizarre than this 20t century Archaeopteryx. The hoatzin life cycle is a telescoped version of th story of evolution. Young birds hav claws on their wings — evidence their reptilian ancestry — which allo them to scramble through the tre and bushes.

Home to nearly 1300 specie Venezuela is a bird watcher's moth lode. The authors of this book descril every species known to inhabit t country at present. Notes on a pearance, habits, habitats, and nesti data make field as well as armcha discovery an easy matter for even t most basic enthusiast. Unfortunate a description of immature birds w omitted, but with so many species might have added confusion rath than clarity. Each avian family

preceded by a short account providing core information on the species to follow.

Both authors come well equipped for their task. Mr. Meyer de Schauensee has written *A Guide to the Birds of South America* and *Birds of Columbia*. I can attest to many enjoyable sessions spent with his South American guide. Co-author W. H. Phelps Jr., with 35 years field experience, has a broad knowledge of the avifauna of Venezuela (I wonder how many pairs of binoculars he has laid to rest?). Forty colour and 13 black-and-white plates plus many line drawings illustrate virtually all of the resident species of the country and I was pleased to find that females were included in many of the plates; there is nothing worse than a chauvinistic field guide! The line drawings of Michel Kleinbaum merit particular mention. I have noticed in previous guides that migrants and other less glamorous species are either forgotten altogether or else depicted by drawings of questionable quality. Mr. Kleinbaum offers a refreshing, realistic interpretation of his subjects which contributes immensely to the overall impact of the book. As a field guide the book is large but not unmanageable and should interest the scientist as well as the amateur.

If you are fortunate enough to be considering a South American vacation or anticipate that next year the winter blues will have you contemplating an overdose of bird seed, consider *A Guide to the Birds of Venezuela*. You won't be disappointed. — Reviewed by *Wayne Lynch,* 1762 Kilborn Avenue, Ottawa, Ontario K1H 6N2

## SUGGESTIONS FROM THE BLUE JAY BOOKSHOP P. O. Box 1121, Regina, Sask S4P 3B4

*Bob Symons speaks to us again!* THE FIRST PEOPLE — drawings by Lee R. Updike, text by R. D. Symons: paper $8.95; cloth $14.95, 141 pp. 8x8¾, illus. by over 140 drawings by Weyburn artist and man of the cloth Lee R. Updike; a sensitive text written by Bob Symons enhances the fine artwork. Five Indian and Inuit life styles are illustrated and discussed.

**BIRD BOOKS**

AUDUBON BIRD GUIDES: Water, game, and large land birds of Eastern and Central North America, 380 pp., 623 illus. — 458 in col., 1951 — $8.50. Land Birds (including owls) of Eastern and Central North America, 365 pp., 400 illus. in col., 1949 — $8.50. Both vols. by R. H. Pough, col. illus. by Don Eckelberry, cloth. More general information than is usual in a field guide. A most satisfying set. (The Western Bird Guide covering the far west of North America is out of print.)

AUDUBON SOCIETY FIELD GUIDE TO NORTH AMERICA BIRDS, by J. Bull and J. Ferrand, 773 pp. (Eastern Region) about 600 illus. col., 1977 — $9.75. (Western Region), by M. D. F. Udvardy, similar — $9.75. Both vols. are 4"x7½", flexible cover, sewn binding. They have several unique features and rely exclusively on colour photographs for identification.

BIRDS OF MANITOBA by Ernest Thompson Seton, paper, 186 pp., 1975 facsimile of the Proceedings of the U. S. National Museum, Vol. 13, pp. 457-643, pub. in 1891. Introduction to this issue by Dr. Robert W. Nero. It was specially produced for the AOU Convention in Winnipeg, August 1975. A great deal of Saskatchewan data included. $6.50.

BIRDS OF ALBERTA by W. Ray Salt & Jim R. Salt; 1976, 498 pp., 303 col. illus., 13 b.w. drawings, 388 maps, 5½x8½, $10.00. A totally new book with an entirely new updated and expanded text covering 329

species. Range maps include Saskatchewan & Manitoba.

BIRDS OF CANADA by W. Earl Godfrey, 1966, 428 pp., 69 col. pl., 71 drawings, 2 maps, cloth, $17.50. Describes every bird found in Canada. See the enthusiastic review by Dr. R. W. Nero in Blue Jay, March 1967.

BIRDS OF THE EARLY EXPLORERS IN THE NORTHERN PACIFIC by Theed Pearse, 1968, 275 pp., map, illus. $7.95. An interesting book compiled from the records of Russian, Spanish, English, French and U. S. explorers.

BIRDWATCHER'S GUIDE TO WILDLIFE SANCTUARIES by Jessie Kitching, 1976, 233 pp., b.w. photos, paper, $5.95. This unique guide describes most of the major and many of the smaller sanctuaries and refuges open to the public in the U. S. and Canada, their birds and environment. Most useful for the travelling birder.

BIRDWATCHER'S BIBLE by Geo. Laycock, 1976, 207 pp., 8½x11, profusely illus. col. and b.w., paper, $3.95. All phases of birding are discussed in this comprehensive book, such as activities (recording songs, photography, precautions, hazards etc.), equipment (binocs., scopes, cameras, etc.), attracting birds (boxes, plantings, winter food, etc.), where to go, and ending with a N. A. life list. A fine gift for a beginner.

BIRDS OF THE CYPRESS HILLS AND FLOTTEN LAKE REGIONS, SASKATCHEWAN by W. Earl Godfrey, 1950, paper, 96 pp. 65¢. Two fine annotated checklists of Saskatchewan.

BIRDS IN BOREAL CANADA by A. J. Erskine, 1977, paper, 8½x11, 73 pp., illus. b.w. photos, $5.00 Can. Wildlife Service Report No. 41 covers an 8-yr. period to assemble baseline data on the composition and density of the bird communities in various habitat types. These data, with other material from a variety of sources, now permit an overall review of the boreal avifauna, its composition, evolution, and prospects for survival.

BIRDS OF NORTH AMERICA by C. S. Robbins et al, paper $4.95, cloth $8.95. This book, which describes every North American bird in colour is maintaining its extraordinary popularity. At current prices it is by far the best buy when compared with other field guides. The clothbound guic will outlast any paperback.

CRUICKSHANK'S PHOTOGRAPHS C BIRDS OF AMERICA by A. D. Cruickshan paper, 8½x11, 1977, $6.95, 182 pp. Th collection of superb b.w. photos show 1 species and subspecies with a brief e planatory text.

FIELD GUIDES: To (Eastern) Birds, clot $9.50; Western Birds, cloth $11.25, p $7.95. both by Roger Tory Peterson. T Birds' Nests in the U. S. east of t Mississippi, cloth $8.75, by H. H. Harrison.

FIELD GUIDE TO THE NESTS, EGGS AN NESTLINGS OF NORTH AMERICAN BIRD by Colin Harrison, illus. with 48 col. pl. eggs and 16 pl. of nestlings and many lir drawings. $11.95.

FIFTY COMMON BIRDS OF OKLAHOM and the southern Great Plains, by G. M Sutton, cloth, 113 pp. 1977, 5x8¾, $8.15. full-page colour plate by Sutton of each bi faces the page of text about that bird. C the 50 bird portraits shown, 36 are breedir birds of Saskatchewan.

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EDIBLE WILD PLANTS by O. P. Medsger, 1939, paper, 323 pp., illus. b.w. drawings, ½x8, $4.50. A complete, authoritative guide to identification and preparation of North American wild edible plants.

FIELD GUIDE TO EDIBLE WILD PLANTS by . Angier, 1974, 255 pp., paper, 5½x8¼, 6.50. An all-colour identifier of more than 00 edible wild foods growing in North merica. The illustrations are full page, pposite the descriptive text. Species are rranged alphabetically by common names.

IELD GUIDE TO THE GRASSES, SEDGES ND RUSHES OF THE UNITED STATES by . Knobel, 83 pp., 1899 (Dover repr.) illus. rawings, paper, $2.35. Over 370 of the most ommon species are accurately described. or the 1977 repr. the scientific and comon nomenclature has been brought up to ate and a new preface and index prepared y M. E. Faust.

OW INDIANS USE WILD PLANTS FOR OOD, MEDICINE & CRAFTS by F. Denmore, 1928 (Dover repr. 1974), 120 pp., aper, illus. b.w. photos, $3.25. Describes e uses of plants by the Chippewa Indians f Minnesota and Wisconsin.

WILDFLOWERS ACROSS THE PRAIRIES by enton Vance, James Jowsey and James cLean, 1977, 214 pp., 5¾x8¾, cloth $14.95, NEW SEWN PAPERBACK $9.95. The illustrations of the 270 species described have been carefully selected to permit identification by comparison with the plant in the field. Its extraordinary popularity attests to its success.

CAREX IN SASKATCHEWAN by John H. Hudson, 1977, paper, 8½x11, mimeo, 193 pp. $10.00. This is a book for the serious botanist. The Research Assistant, W. P. Fraser herbarium, University of Saskatchewan, has combined keys, descriptions, range maps and photographs of the commoner species, into a volume that will be welcomed by everyone interested in sedges.

**OTHER NATURAL HISTORY BOOKS**

THE AMATEUR NATURALIST'S HANDBOOK by V. Brown, 1948, 473 pp. 4¾x7, cloth, illus. with drawings, $6.50. An extraordinarily comprehensive book for young people. It is divided into four sections: The Beginner, The Student, The Advanced Student and Becoming an Explorer-Naturalist. Animals, plants, rocks and minerals, are all considered.

BEGINNER'S GUIDE TO FRESH-WATER LIFE by L. A. Hausman, 1950, cloth, 4¾x7½, 128 pp., illus. drawings, $4.15. A handy reference to the most common forms of animal life found in swamps, pools, ponds, lakes, brooks, and larger streams of North America.

THE CONTROVERSIAL COYOTE: Predation, Politics, and Ecology, by L. Pringle, 1977, cloth 84 pp., illus. b.w. photos, 6½x9¼, $7.75. Villain? Invaluable Predator? Both? Can we have both coyotes and sheep in abundance? Pringle writes with clarity and balance.

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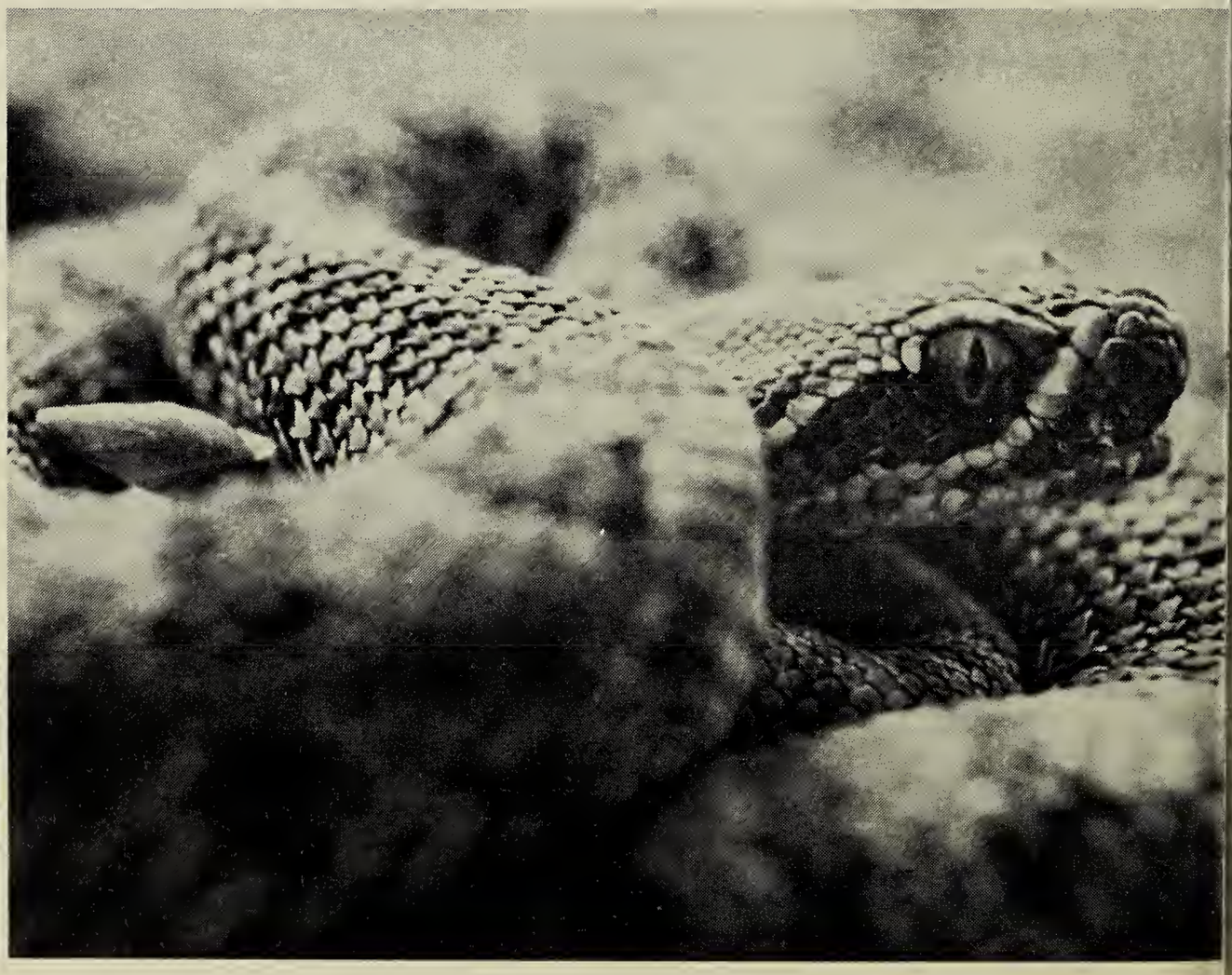
FROZEN FIRE by J. Houston, 1977, cloth, 149 pp., $6.95. A story for children. A white boy and his Inuit friend go off from Frobisher Bay by snowmobile to search for his lost father. The story of the struggle is based in part on a true and perilous journey made by an Inuit boy.

*Moose* *J. B. Goll*

*Prairie rattlesnake* *Wayne Lyn*



A HISTORY OF THE ORIGINAL PEOPLES OF NORTHERN CANADA by K. J. Crowe, paper, 1974, 226 pp., $3.75. A history of the Indian and Inuit of northern Canada interpreted from a native standpoint.

THE HOT-BLOODED DINOSAURS: A Revolution in Palaeontology, by A. J. Desmond, cloth 7x10, 238 pp., illus., $5.95. A palaeontologist, the author could not believe that the dinosaurs, particularly the giants, were cold-blooded lizards and has produced convincing argument to the contrary.

NAHANNI by Dick Turner, cloth, 1975, 286 pp., illus., $8.95. The author arrived in the Nahanni country in the early 1930's and survived as trapper, trader, river-man, gold-miner and bush pilot. A vivid account of a way of life now gone.

NATURE'S ODDBALLS by L. Zappler, cloth, 1978, 148 pp. illus. 6½x9½, $6.50. With fascinating descriptions and unusual photographs we are introduced to those animals which defy classification and grouping. A fine gift for a young naturalist.

NATIVE TREES OF CANADA by R. C. Hosie. 1969, 380 pp., 6½x9¾, paper, illus. $6.00. About 140 species are described.

NEW FIELD BOOK OF NATURE ACTIVITIES AND HOBBIES by W. Hillcourt. 1970, cloth, 400 pp. illus. 5x7½, $8.95. Absorbing activities and hobbies such as photography, field study, collections, rearing insects, aquaria, weather forecasting, star-gazing, etc.

NORTH AMERICAN MOOSE by R. L. Peterson, 1955 (repr. 1978), paper, 280 pp., 29, illus. b.w. photos, $13.50. This is still the most comprehensive work available on the moose. It brings together a detailed review of published literature and the results of the author's personal studies in the field and laboratory. It continues to provide the basis for a sound management programme for the moose's continued conservation.

VENOMOUS REPTILES by S. A. Minton and M. R. Minton, 1969, cloth, 274 pp., illus, 7½x9, $2.65. In this lively and authoritative account, the authors describe venomous reptiles as they are, and as men believe them to be. They offer a lucid summary of scientific knowledge about these reptiles, including their own research.

WALK INTO WINTER by G. Wolfram. 1977, paper, 127 pp., 5½x8½, illus., $4.50. This is a complete snowshoeing and winter camping guide. Everything the individual or family need to know about snowshoeing and camping out.

**MISCELLANEOUS**

MAPS: Land Capability for Waterfowl, scale 1 in. = 15.78 miles, Alberta, Sask. Manitoba each province $1.50.
Land Capability for Ungulates, scale 1¼ in. = 5 miles; Melfort, Hudson Bay, Yorkton, each 50¢. Land Capability for Waterfowl, same scale; Swan Lake, Medicine Hat, each 50¢; Land Capability for Recreation, same scale; Regina, Willow Bunch Lake, Weyburn, Pasquia Hills each 50¢. (Many others available)

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**SNHS ANNUAL MEETING**

October 13-14, 1978
at Moose Jaw, Saskatchewan
Banquet Speaker — Doug Gilroy
See Newsletter for details.

# R. J. FITCH, 1886-1961

CHARLES D. BIRD, Dept. of Biology, Univ. of Calgary, Calgary, Alberta T2N 1N

One of seven brothers, Richard John Fitch was born in 1886. The son of Edward A. Fitch, who at one time served as President of the British Entomological Society, "Dick" began collecting British Lepidoptera as a young boy. After finishing his schooling, he worked for Lloyd's of London. The west soon began to lure him, however, and in 1905, at the age of 20, he left Malden, Essex for Canada.

He homesteaded 16 miles south and two miles west of the town of Lloydminster. His first Alberta home was a shack. The home quarter, with Blackfoot Coulee and a large gully running through it, was a prime location for collecting but Dick was so busy proving up the land and making the farm a going economic unit that he was forced to forget his hobby interest until later in life.

In 1917, Dick married Dorothy Isobel Atkinson. "Dolly", who was 14 years younger than her husband, came out from Ripley, Derbyshire, England with her parents in 1912. Her first Alberta home was a sod house.

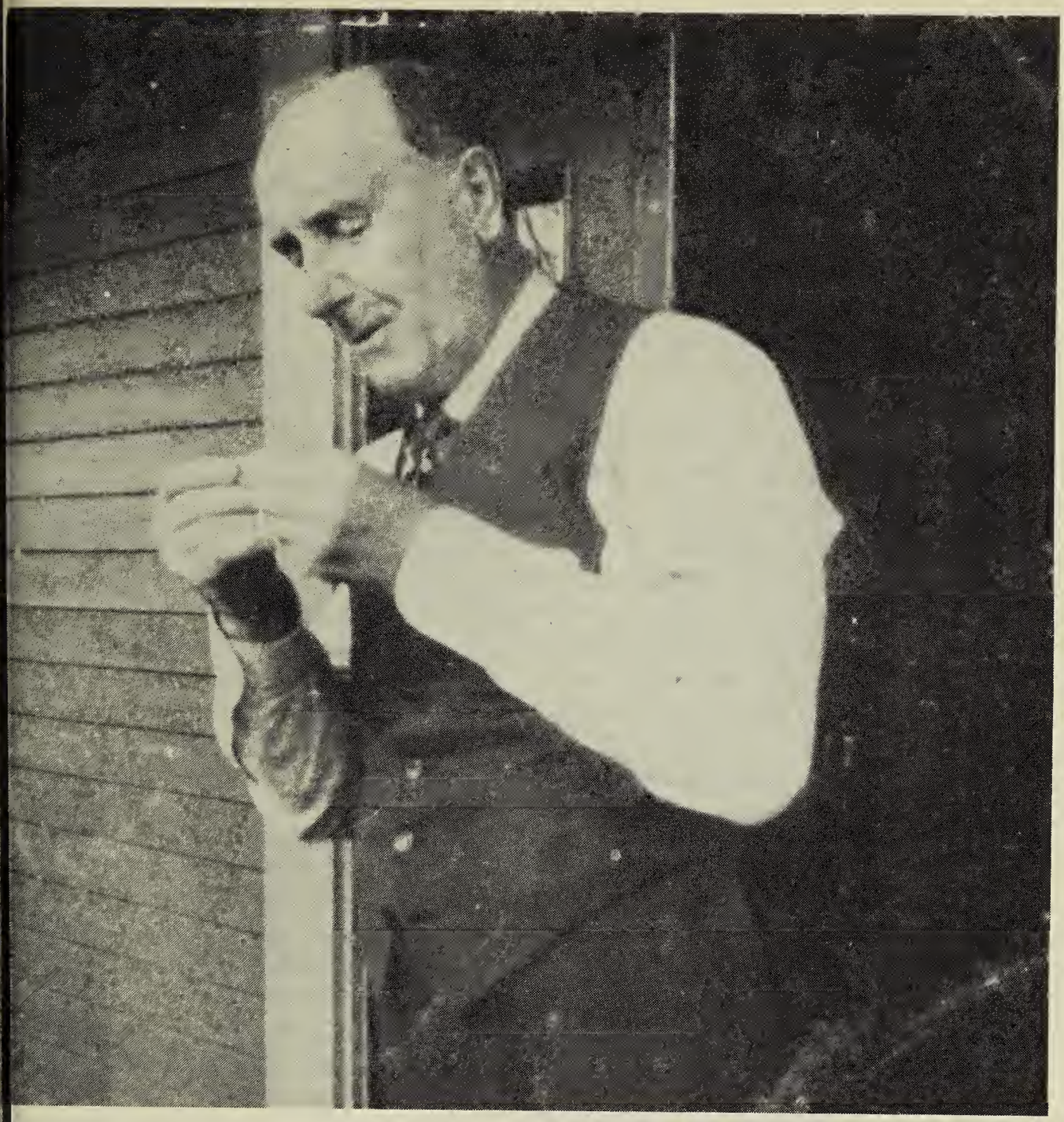
Dick was a big man and physically active. He won a number of prizes for his prowess at swimming and he played soccer and cricket. He even built a tennis court on the farm. Work in the early days was physically demanding and it was some time before he was able to supplant horse power by tractor power. He had a large stamp collection and was frequently called upon to act as an auditor.

Dick started collecting again in 1921. His wife made him a net out of a slender willow, an old broom handle and a piece of cheese cloth. A local druggist helped by making him a cyanide bottle. Farm activities k t him close to home but that did t stop him from collecting. He regul y took his net and bottle to the fi l Butterflies were more numerous in e early days as there were still m y areas of native prairie.

By 1930 he was collecting in earn often helped by his wife and child and this activity continued until e retired from the farm. He began correspond with people in the f and by 1940 was in touch with m y museums and individuals in N America and England. He develope small business in which he s specimens, often for a dollar each sometimes even for more. From 1 to 1956 he distributed a hand-co list entitled "List of Arctic specie Lepidoptera caught by R. J. Fitch Lloydminster, Saskatchew Canada". Although his main inte was in butterflies, he also collec and sold moths which he capture night with the aid of a light and using sugared bait.

Specimens for sale or exchange w placed in paper triangles folded f magazine pages and were then st or mailed in ½ pound tobacco c To begin with he simply put the spe name, "Fitch", the date of collect and "Lloydminster" on the pack This created some confusion as it not clear from which province insects had originated. J. H. Mast for example, in his paper "R. J. Fit List of Saskatchewan Butterfl which appeared in 1968 in the *Blue* (26:194-199) states "there is evidence that Fitch collected to extent in Alberta".

Correspondence with Fitch's wi and other members of his fam



J. Fitch

owever, reveal that the original omestead was on the southwest uarter of section 14, township 47, nge 1, west of the fourth meridian. nce the fourth meridian is the 110th arallel of longitude and also forms e Alberta-Saskatchewan boundary, e farm was between 1½ and 2 miles side Alberta. Although the town of oydminster is partly in Alberta and rtly in Saskatchewan, literally addling the boundary, the Lloyd-nster post office is in Saskatchewan. though Fitch got his mail in the hamlet of Rivercourse two miles west of the boundary, the address was not given as Rivercourse, Alberta, but as Rivercourse via Lloydminster, Saskatchewan. No wonder that confusion resulted!

The family report that most of Fitch's material was collected on or close to his farm, two miles north of Rivercourse, Alberta. A few collections were also made in the Blackfoot hills, a few miles to the northwest of the farm and slightly further into Alberta,

and along the Battle River, about 13 miles south of the farm, reached by a road one mile west of the boundary. These Alberta collections were in the Aspen Parkland and here he captured insects typical of the prairies and aspen groves.

The only area in Saskatchewan where he collected was on the Fifield farm near Harlan, a rural post office 25 miles north and 3 miles east of the boundary. This area is in the Boreal Forest and his material from there is characteristic of coniferous forest, muskeg, and bogs.

Fitch gave up farming in 1942, bought a house in Vancouver, and moved there with his wife. For a number of years he spent the winter at the coast and the summers back on the farm where he was able to continue his collecting activities. He died in 1961 at the age of 78 and was buried at Vancouver. His personal collection, stored in a number of boxes, was divided among his family after his death.

R. J. Fitch was survived by his wife at Lloydminster; sons Ted, on the original farm near Rivercourse, and Tom, of Edmonton; daughters Eva, Isobel and Cicely of McLaughlin, the next hamlet southwest of Rivercourse, Alberta, and Peggy of Lloydminster; 15 grandchildren and 20 great-grandchildren.

## A TRIBUTE TO "CORKY" JONES OF EASTEND

The death of "Corky" Jones on March 27, 1978 at the age of 97 terminated a remarkably fruitful association with southwestern Saskatchewan. In the CBC "Neighborly News from the Prairies" programme on May 28, Fred McGuiness of Brandon used the *Eastend Enterprise's* editorial salute to the memory of H. S. Jones and his unusual contribution to th development of the Western Plains. Wit Mr. McGuiness' permission, we quote th tribute.

"Corky" Jones to me is an exampl of one of those Prairie pioneers who i spirit and in deed built the West an gave the West its flavor. While h father was a physician to Quee Victoria, Corky had no suc aspirations: he wanted to see the Ne World. For many years he was cowboy and then a rancher aroun Maple Creek. From the Metis familie nearby he learned of their history, an human history led him into a chaeology as a highly talente amateur. Retired from ranching he ra a livery stable, then the first electr light plant, but no matter what his jo he was collecting archaeologic specimens which he developed into museum, now located in Eastend Hig School.

In his book *Wolf Willow*, whi should be read by every Prai resident, Wallace Stegner says: "If community is really a pile of kindlin inert and heatless until some accide of heat or some man touches it wi fire, then Corky in his humble a unpretentious way is a sort of lig bringer."When Corky Jones was to night watchman, ringing the curfe each night at nine, he was maki discoveries which set the world archaeology a-buzzing. One of h discoveries, the skull of the dinosa called ceratopsian is unique: no simil one has been found in this world.

Corky Jones died at the age of 9 and the *Eastend Enterprise* describ him as a man who had been educator *without salary* for the great part of his life. This tribute is writt by Elsie Bock, and with a name li that, she just has to be a kin to Bi Bock, author, poet, compos philosopher, one-time member Parliament for that colorful short gra rangeland.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